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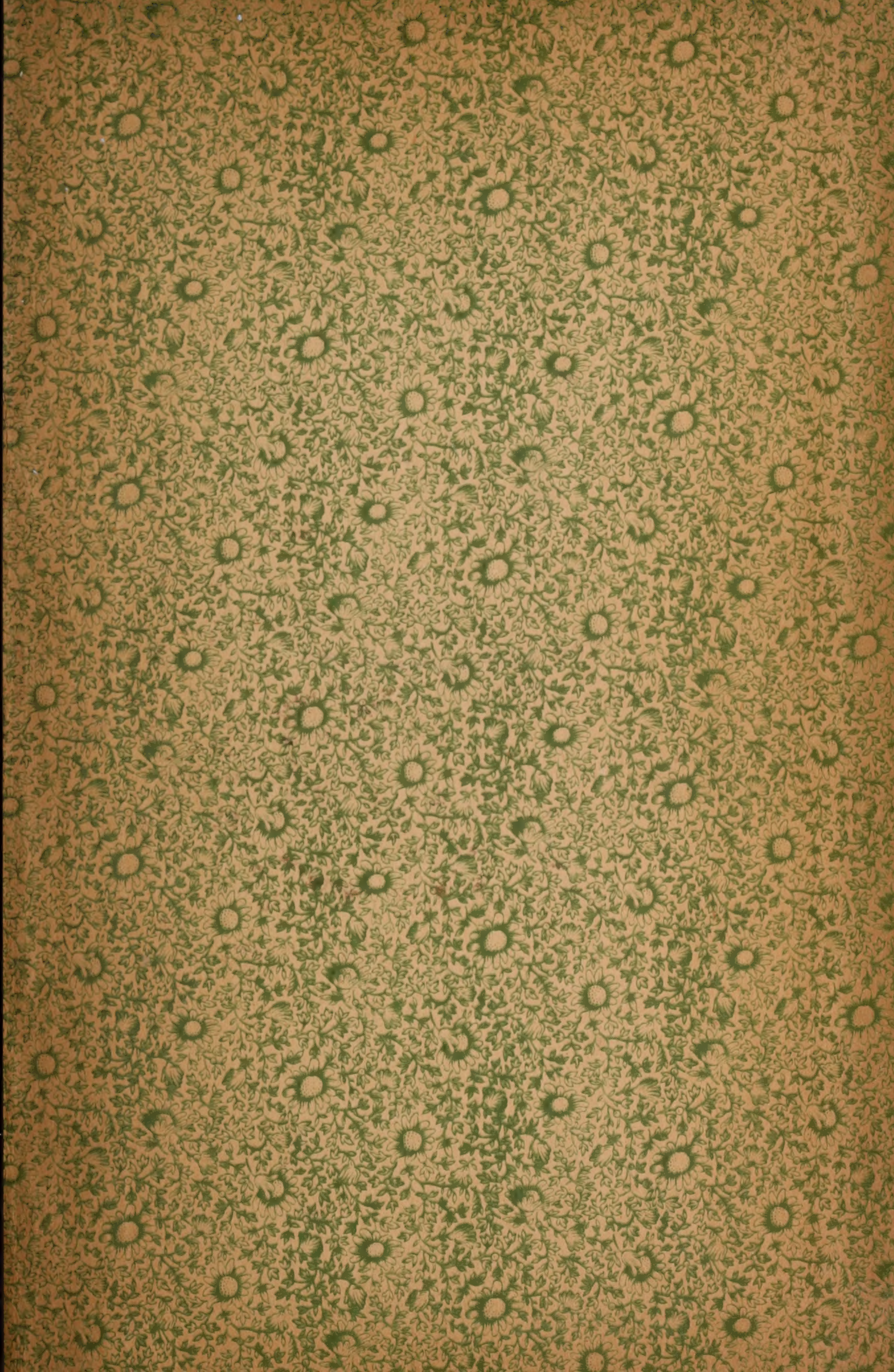

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THEN AND NOW.

BY JAMES TRUMAN, D. D. S. PHILADELPHIA, PA.

There have been histories of value from the pens of Guerini to McManus, full to overflowing of the origin of dentistry in the old world of civilization and the newer life on the American continent, but the personal observations are generally lacking, for the all sufficient reason that death has invaded the ranks of the largest number of those who knew the older life of dentistry, and, when living, these rarely gave their experiences to the reading world.

The writer has felt that the personal in history, however narnow its horizon may have been, has a value that should not be lost to the active mind of the present.

It has frequently been observed that the generation of dentists at any given modern period is more concerned with the material progress of the decade in which they labor, than they are with the successive steps that have led to the standard of excellence attained. Very few today can look back on the history of dentistry in Philadelphia to the early decades of the nineteenth century. Those who were engaged in its practice in that city could date their professional life only from the period when they emerged from the laboratory or, later, from the college, and the trials and tribulations of the earlier periods conveyed no instruction and had, for them, no financial value. Hence, the early days have been left to the historian who deals not with the inner life, but is satisfied with the bare facts of material progress.

The writer does not suppose that he can add very much that will be of interest to the dental professional world of the present. but it is his pleasure to collate the facts of experience and, perhaps, they may convey a lesson that may not be lost upon the novitiate and the more advanced practitioner, who may have begun their career or gone out into the greater world of professional activity fully panoplied in all the knowledge stored up in preceding years. As each of these classes view their books, their appliances, their beautiful office environments and remember the authoritative lessons of their teachers, they naturally feel that these things have always been and that they are rightfully the heirs to all that belongs to their profession. That this is the right view for both these classes, is certainly true, for were they to think otherwise, the halo, which surrounds all their acquired experience, might dissolve into a skepticism detrimental to present and future success.

When the mind wanders back into the primeval wilderness of physical life it becomes lost in a maze of tangled growths that were part of the undeveloped regions of aboriginal life, and this is equally true of the moral and scientific unfoldings. In view of these crudities, physical and moral, the question naturally arises, if these things are now and the professional mind under a cloud and incapable of perceiving its defects, may it not be equally floundering, in the present decade, in the morass of similar errors that perturbed the Fathers? This is more true of dentistry than any other calling, for while its origin dates back in the centuries, as Guerini has shown, it had no real life either in this country, or any other, until the dawn of the nineteenth centruy. The writer, however. is not disposed to trespass upon the work of those who have made it their life labor to relate how American dentistry grew out of the plants nourished on French soil, and transplanted from thence, assumed new vigor and have been made as beautiful as the parent stock and even supplanted it in many practical virtues.

The writer's experience goes back to 1837. Seventy-three years covers very nearly all of the dentistry in this country worth recording; indeed. it can be said that all the progress made in our profession dates from that period, and what is true of this country includes that of the life of older civilizations. It was about this period that dentistry began to emerge from the barber, leecher and bleeder period. It was at this time that the first perceptible impression on the thinking public of this city began to be perceived. There had always been a certain few who could appreciate the value of what we know now as prophylaxis. They recognized that this would be best accomplished through constant care and professional attention, but how few there were who were thus cultivated. The forceps was the principal source of income to the dentist of that day, and that without any anesthetic to mitigate the severity of the operation. The idea that money should and could be appropriately spent in filling cavities with gold was, to a certain class of mind, an absurdity and, unfortunately, this class was in the majority. Hence it was that dentistry was crude in its conceptions and cruder in practice.

It was during the earlier periods of this century that dentistry was held as a secret calling. Whoever sought its ranks was obliged to pay heavily for the limited knowledge acquired. Hence, the laboratories and offices were closed to all who aimed to "steal the trade." Dr. Elisha Townsend, who was, at this time, and previously, one of the most brilliant expounders of all that was good in his calling, said in an address in 1850: "The science of dental surgery, properly so-called, is scarcely older than the oldest man in this assembly * * * Thirty years ago dentistry was practised as a secret art, its disciples evinced great exclusiveness and carefully hid from each other the methods by which they attained, or thought they attained, an individual superiority." Dr. Townsend did attain superiority. While the only form of gold then available was the non-cohesive, he could manage this as few could then or since. The writer frequently watched him as he placed piece by piece in a given cavity and, completing it, it was as near perfect as any of the mallet operators could accomplish at the present time. His statement that in 1830, and previously, all dentistry was held in secret, was very true. The writer was amused at the indignation expressed by his very peaceable father, at the efforts of one to get into his laboratory through other than the path of dollars, for this was the universal rule. There were then no dental associations, no comparison of views individually or collectively, no journals, except *"The American Journal of Dental Science,"* 1839, and that was more concerned with the past in Europe than with present professional needs, no college until 1839, and its influence was very limited for many years. Those who aimed to be something more than "mere mechanics," as the phrase goes at the present, studied medicine in its entirety to the degree of M. D. or, part, in the anatomical schools of this city.

The principal duty of the average dentist was confined to extraction and the manufacture of artificial dentures. Dentistry had just emerged from the carving of ivory sets and its disciples were beginning to use single teeth and blocks made in the laboratory. How crude the latter were cannot be understood by the active worker in ceramics of the present time. The single teeth were more like carved beans with but little resemblance to the natural teeth, as these were prepared in the private laboratories. They did not assume proper form until Samuel W. Stockton began their commercial distribution and gave them a more artistic and natural appearance. It is not the purpose here to enter into the origin of porcelain teeth, suffice it to say that Stockton (1830) and James Alcock (1835) of New York began the manufacture commercially. D. C. Ambler had attempted this, 1828, but the success, if any, of this experiment, is unknown to the writer. The difficulty experienced in securing the proper form of tooth, prior to Stockton's advent, forced the practitioner to make his own porcelain dentures, and it was one of the earliest experiences of the writer to spend much time grinding the materials that entered into porcelain, feldspar, silex, kaolin, and finally combining these into body and enamel. Then came the burning of the biscuited body. What a task this was with the then furnaces, and when finished how unnatural they were, fused to a gum that looked as though its color had undergone a bleaching process. Then the blocks must be mounted. The plates upon which were placed were narrow, covering very little more than the alveolar border, and the teeth were fastened to the plates by headed pins placed in holes, the latter drilled in each tooth prior to baking, and these were fastened by riveting to the plate. The adhesion of plates through atmospheric pressure was wholly unknown, in fact covering the entire hard palate with plate would have been regarded as an outrage by the patient, for "how was it possible to taste the food with the entire mouth filled with gold or silver?" Then the springs must be adjusted, where upper and lower dentures were needed. These monstrosities were, at times, the cause of perplexing accidents. The writer was familiar with a minister.

in preaching, becoming rather energetic, the teeth sprang from the mouth and landed among the congregation who, while surprised, took it good-naturedly as part of the business connected with wearing artificial teeth. Springs to sustain difficult dentures were among the very last of the old mechanical appliances to become obsolete. The prejudice against full plates was so great, combined with the difficulties met with in retaining them in place, that this had much to do with the retention of springs as part of the armamentarium of the mechanical dentist. Indeed, as late as 1879, the writer was familiar with these in the stocks carried by supply houses in Germany, when there in practice. While full plates were used with so-called suction cavities, it was not until 1853 that the writer was obliged to purchase the right to use this, then regarded as a great improvement.

The soldering of plates, after the teeth had been properly backed with gold or silver, for these were the two metals alone used at this period, was a matter of considerable difficulty. How this was accomplished by others was unknown for, as before stated, no one was kind enough to explain his method. In the writer's experience the plate and teeth to be soldered were mounted on charcoal and then surrounded with plaster, no attempt being made to protect the narrow plate. While, with care, the process could be accomplished without injury, it was frequently the case that the plate would be sprung by the heat and warped out of proper form. It was not for some years thereafter that the simple expedient of investing the entire plate with plaster and sand was adopted, a process still in vogue, with various modifications. Where it was practicable, plates were held by clasps made of half round gold wire. These, in short time, wore a continuous groove round the teeth thus clasped, ruining the teeth and making the plate valueless. The idea of a broad clasp covering the entire surface of the tooth seems not to have dawned on mechanical minds of the time described, but the writer very early abandoned this half round wire for the wide clasp, the more sensible method.

All impressions of the mouth were taken with ordinary beeswax. The use of plaster for this purpose did not come into general practice for some years later.

It was about this time that the key of Garengeot, so-called, although he simply perfected a previously existing instrument, was being gradually laid aside for extraction and the modern forceps began to be generally adopted. The writer, however, has cause to remember the key, as one of his first permanent molars was uprooted and sacrificed by this barbarous invention of mediaeval dentistry. No anesthetic was ever used, although the term was familiar to the dictionaries. It has frequently been stated that Dr. Oliver Wendell Holmes suggested the term, after it was demonstrated that ether would produce insensibility to pain, but this is a mistake as far as originality is concerned. It is true he did suggest it, in a letter to Dr. Morton, but made no claim to its being a new term. Parr's Medical Dictionary, London 1819, gives this term as it is used now. It would seem proper to correct this here, as the first statement is generally believed.

The usual crown inserted was that of porcelain, with a hickory wooden pivot inserted in the pulp canal. Any attempt to treat said canal beyond bathing it with creosote, it is feared not often done, was not considered necessary. The final result, with this form of pivot, was that they were required to be enlarged from time to time until the end, which came eventually, to the disgust of operator and patient. No explanation of why this result was universal was given, for the all-sufficient reason that bacteriology was then unknown and it was many years before Miller demonstrated the reason for this constant wasting of the wood.

It is not the purpose of the writer to follow the advanced modes adopted from this time to the present. The grafting of crowns upon roots is now well understood, but the present methods are by no means free from criticism, due, in large degree. to a lack of pathological knowledge, or carelessness in the application of known laws.

While mechanical dentistry, as it was then called, for it had not reached the present higher sounding name of prosthetic, while defective, was not quite as bad as the operative branch, if pathological treatment of oral lesions be included under this name. It is true that Hudson had filled canals in teeth, and Maynard, about this time, was perfecting his splendid work of filling the canals with gold. Spooner had given dentistry arsenic as a devitalizer, 1836, but the average dentist knew little as to its proper use and nothing as to its possible dangers. The writer's first introduction to this agent was in the form of small squares, made from a combination of charcoal and arsenic, with creosote added and then dried. One of these squares was laid upon the pulp and the patient was supposed to endure the pain until the pulp, or nerve, as it was then called, had died. The pulp chamber might then have been cleaned out and the tooth filled, with the result familiar to modern operators. That this unscientific method did sometimes succeed, remains, in the writers' mind, a pathological miracle.

When the filling of dental canals became, at a later period, universally adopted, it was the practice to fill with gold, but no attempt beyond creosote bathing the walls before inserting the metal was made to meet the conditions almost certain to follow through decomposition of the organic matter in the tubuli. The inroads of the saliva during the operation of all fillings was prevented in degree through the aid of napkins, and this was the sole method adopted up to the introduction of Dr. S. C. Barnum's rubber dam.

The entire operation of preparing cavities was accomplished by excavators, chisels and files. The proper use of the latter was considered a work of art. Berdmore, the English writer, toward the close of the eighteenth century sarcastically writes of some dentists in France, because they pretend superiority and pride themselves on their ability in the use of the file. The dentist of the time with which this essay is occupied did not hesitate to file out small cavities on approximal surfaces of anterior teeth, and made havoc with the posterior teeth with the same instrument of destruction. There was no other method available to secure room in which to operate. Wedges of wood were used to some extent, but these were ineffective as separators. No separators, as now known, and which are oftentimes used to the injury of the teeth and surrounding tissues, no engines, electrical or foot power, nothing but perseverance and continuous labor. That much of value was accomplished stands to the credit of these overworked and poorly paid professional foundation laborers. The instruments for filling non-cohesive gold were made upon the principle of forcing as much as possible into a given space. The round end and flat surface pluggers, with those of wedge-shape form, to press the gold laterally, were about all that could be used, and burnishers to finish the filling completed the set. The risk of filling frail teeth by this method was not infrequently manifested by the entire crown falling to pieces under the great pressure used in consolidation. It is not to be wondered at, therefore, that faith in filling teeth to save them did not appeal to the average mind. Many of the sets of pluggers had handles large enough to be grasped by the closed fist and these, operated by a muscular man, using the entire force of the arm, were not calculated to inspire confidence. It was the torture to patients during dental operations, at this period, that has taken many decades to overcome the fear of the dental chair then engendered, and it will take many more before this traditional fear will be removed from the minds of patients.

The dentist of this time was obliged to be his own mechanician. While he could procure instruments from the surgical instrument maker, it had to be through his own ideas, for they had no conception of dental needs. their models being those in use in the eighteenth century. There were no dental establishments anywhere where he could be supplied with materials or appliances needed. His chair must be made after his own suggestions by some furniture expert. His cabinet, if he had one, was made in the same crude way. The cabinets were frequently made for show, rather than use. They were generally exaggerated specimens of the present students' cases, arranged in trays for pluggers, excavators, chisels, files and forceps. The pluggers had ordinarily the large handles mentioned, but this was by no means universal, but whether large or small they were made of agate or ivory. My father invented his own cabinet. This was a mahogany center-table, with folding top and revolving on a pivot. The interior was lined with silk velvet and places were made, with brass pins, for retaining the various instruments in place, the center being used for other necessary appliances and material. This was a great improvement over the cases described. This center-table cabinet now is relegated to common use for books in the writer's library, more useful in that capacity than it would be as a receptacle for the instruments of modern dental surgery.

The solders and plates he must prepare himself or, in Philadelphia, he could go to Joseph Warner, Silversmith, and procure these on order. Joseph was a blessing to the average dentist of the period and fortunately for him he was good as a metallurgist. It was here that Thomas W. Evans served his apprenticeship and subsequently gained his dental knowledge from Dr. J. D. White, and, in after years, became the intimate of Louis Napoleon and the professional adviser of all the crowned heads of Europe. The history of his rise from an apprentice in a silversmith shop is romantic reading, but does not concern this essay.

It must not be understood here that the dentists of this early period were entirely ignorant of metallurgy. Many refined and prepared their own gold and silver and the rolling mill was more in use than in dental laboratories of the present time. The refining of metals is, unfortunately, almost a lost art in dentistry and the average prosthetic dentist depends now on the supply houses.

From the beginning of the nineteenth century until the introduction of cohesive gold there was but little progress, dentists were experimenting continuously, but little was gained. The few men who gave character to the profession and really made all the advances toward a higher standing, were those who had acquired the medical degree. Reference need be made to only a few of this class, which includes Arthur, Townsend, Harris and Wildman. They represent the best of their time. Dr. Wildman graduated from the medical department of the University of Pennsylvania, and to his scientific labors the dental profession owes all it has today in correct formulae for the manufacture of dental ceramics. His porcelain gum will always be recognized as his monument, but his improvement in the body and enamel of teeth was the most important step in giving the true artistic character to artificial dentures and the dental profession should never permit his name to die.

It was to Dr. Robert Arthur that operative dentistry owes its Renaissance from the crudities described. His introduction of cohesive gold in 1855 roused the mental activities to an untold degree. Instruments of a new form were required to work it, new methods of filling were necessary, and greater care in the formation of cavities; in fact, the writer dates the whole of modern dentistry, as understood in the United States, from this period, and here he leaves the *"Then"* and glances at the *"Now"* in our profession.

(*To be continued.*)

SOME PATHOLOGICAL CONDITIONS OF THE ORAL CAVITY.*

BY TRUMAN W. BROPHY, M. D., D. D. S., CHICAGO.

In the examination of the most recently published text-books on surgery it will be found that the same cuts that were employed fifty years ago, in illustrating operations about the face and maxillary bones particularly, are used in these books. We are impressed with the feeling that there has not been very much improvement made, so far as general text-books on surgery are concerned in teaching oral operations within the past fifty years. I am sure that if any of you examine them you will agree with the statements I have made regarding the wood-cuts and other illustrations in the form of photographs, etc. While most remarkable advances have been in the surgery of the more important cavities of the body, the cranial, the thoracic and the abdominal cavities, this particular field has been overlooked. Therefore, we find that extensive incisions are made in the face in the performance of operations within the mouth that in my opinion are uncalled for, unnecessary and unwarranted. Such technique should be discontinued. Moreover, we find that in the schools of medicine, generally, with few exceptions, the medical student has not been given an opportunity to acquire a knowledge of dental pathology, and as a consequence incisions are made through the face for the cure of diseases having origin in the teeth, while the diseased tooth or teeth are absolutely overlooked by the surgeon who performs the operation.

Such cases having dento-alveolar abscesses forming with external sinuses, in each instance incisions were made through the cheek with a view of curing the abscesses, while the conditions observed would have convinced any dentist that the sinus was undoubtedly the result of an abscess formed at the apices of the roots of a molar tooth, and the pus proceeded direct from these roots through the alveolar plate, and instead of escaping in the oral cavity a little above the line where the mucous membrane folds on itself it passed through the cheek and made its exit there. I presume everyone who is engaged in oral surgery and who has attended surgical clinics where patients come from all quarters, has seen some of the surgical work of the type I am speaking of, which has been done by the general surgeon, who really did not know the pathology of the parts he was dealing with.

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*Read before the Odontological Society of Chicago, April, 1910.

The patient that was before you this evening presented a rather extraordinary condition. I regret I have not a photograph of her here prior to the operation, but I have one of a boy suffering from the same disease, though in his case it involved the upper instead of the lower jaw. This boy came to my clinic and I operated upon him there. I was very much interested in him and in the nature of this disease. It was something at the time I operated I did not clearly understand, so I took him to the hospital and had a section made of the growth, and placed it in the hands of Professor Basso, pathologist at the Presbyterian Hospital. He examined the section most carefully and gave me a report with a microscopic specimen of the tumor, and gave me some literature on the subject, which I

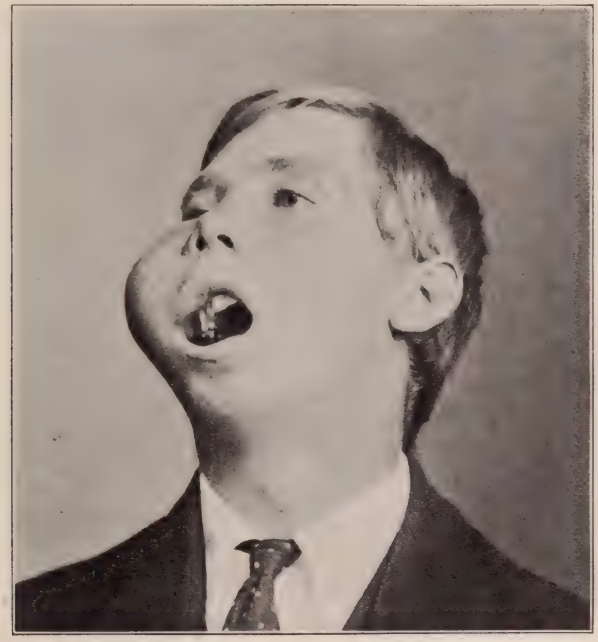

Fig. 1. Leontiasis—Oral View.

studied carefully. I found I had a patient who was suffering from a disease that is quite rare, called technically leontiasis. This is so named because it involves the bone, while another disease of gigantic proportions called elephantiasis, involves the soft parts. The question arose in my mind as to how I could operate on this boy without making an incision through his whole cheek, as it involved everything from the lateral incisor tooth on the side involved, back to the full extent of the upper jaw, and from the eye down to the lower border of the alveolar processes. I resolved, however, to cling to my belief that an operation on the maxillary bone, no matter what its magnitude, should be performed intraorally. Therefore, after anesthetizing this patient, I removed the growth within the mouth, and the boy, five years subsequent to the operation, is now well. The boy has grown to be a strong, young man. He was, at the time of the operation, about sixteen years of age. See illustration Fig. 1.

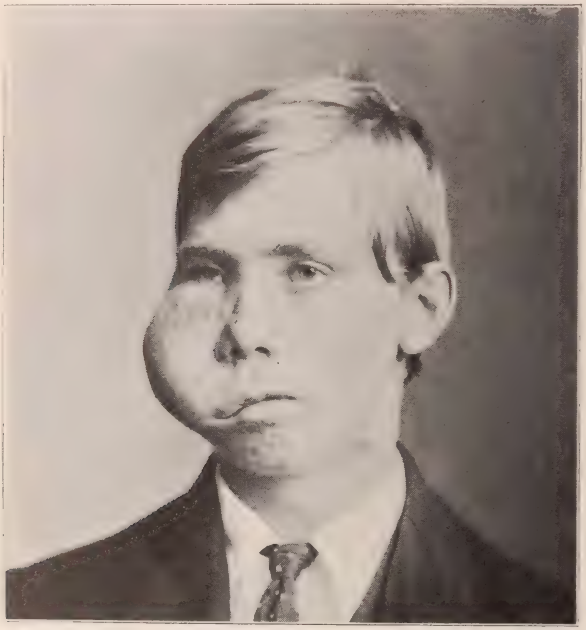

Fig. 2. Front View.

In the operations upon the lower jaw to expose the entire bone, we begin by making an incision back as far as the angle within the mouth, following around, going down deep where the mucous membrane folds, carry the incision all the way around to the angle on the opposite side and with an instrument in the form of a periosteal elevator work the tissues downward, and in so doing we can expose the entire mandible. As soon as we have turned the lip down below the symphysis we have no trouble in reflecting it beneath the chin and backwards until we have two-thirds of the whole body of the jaw out of the mouth.

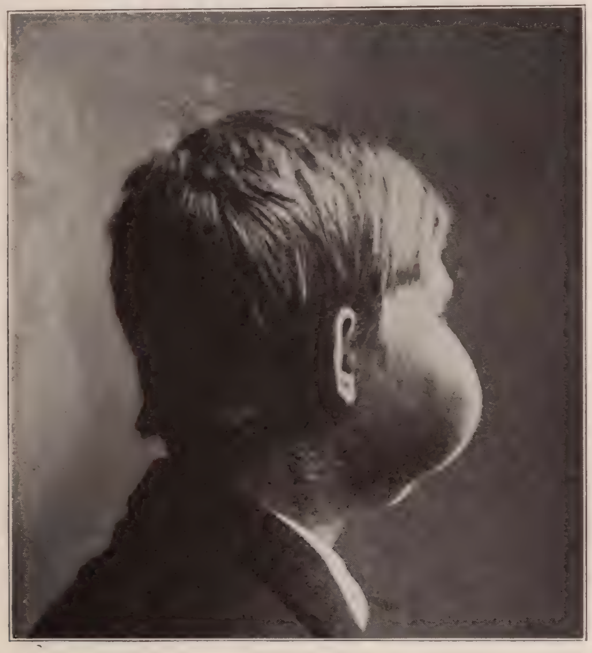

Fig. 3. Side View—Removal Without External Incision.

As shown in this drawing, Fig. 7, which was made by an artist on the spot, a photograph of my patient was made, but it was a dull, dark day, and the photograph made in the operating room was not clear. This drawing is a very good reproduction of the operation. In this case the operation was done for a sarcoma of the jaw, which was removed intraorally. The patient was in my office yesterday quite well. There is no tendency at present towards recurrence.

A rim of bone was left which seemed to be good, sound, healthy tissue, which was not involved by the destructive process of the growth, and I had the temerity to retain this part of the bone as a means of preserving the contour of the face, and I am satisfied the man has recovered. The growth has not recurred. The tissues look perfectly healthy. He has gained thirty-eight pounds in weight since the operation, and he is happy and attending to his usual duties. His condition at one time was very bad indeed. He became very much emaciated and absolutely unreliable mentally. His mind wandered. He wanted to sell everything he had, and would have given away all his property had he not been prevented from doing so by his family. This is an extreme case, however, a rare case, the man suffering from osteosarcoma and having such a result as that. It is not so much for the purpose of relating the fact that the man seems to be well and that there is no recurrence up to the present time as it is to show that an operation on the mandible,

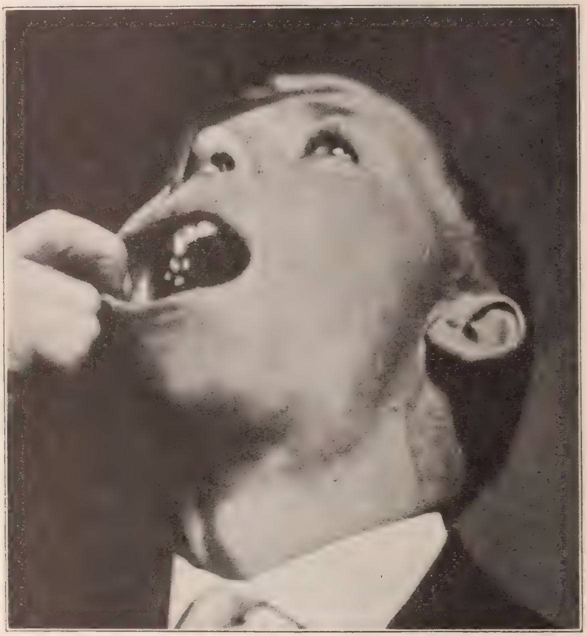

Fig. 4. Five Years After Operation.

no matter how extensive it may be, may be carried on to the extent of removing the entire bone, disarticulating it at the temporomaxillary articulation, may be done in the mouth without serious consequences. True, to make an external incision and expose all the parts is easier. Hemorrhage may be controlled more readily, but the unfortunate thing is that the patient's face will be disfigured for life.

Here is as good a cast as could be obtained of the mouth of the patient who was before us this evening. This patient as you have seen is not in any way disfigured from the operation.

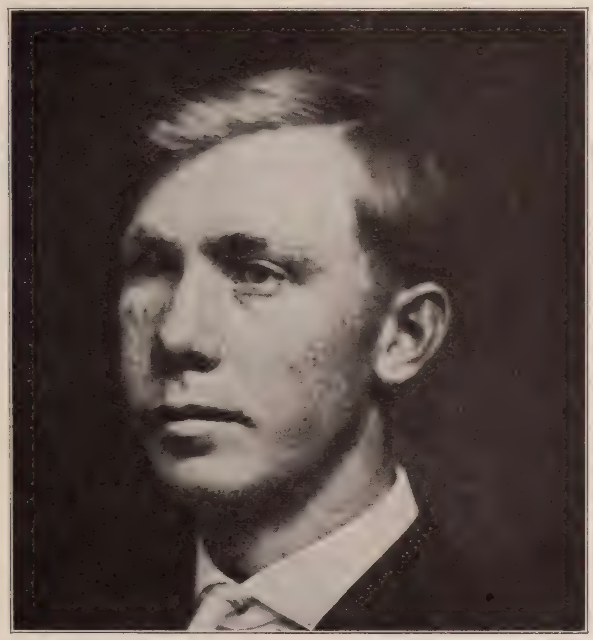

Fig. 5. Five Years After Operating.

Operations for the exsection of nerves, the infraorbital and inferior maxillary are sometimes necessary in the treatment of trigeminal neuralgia. A number of years ago I devised operations which do not require external incisions. These operations are performed within the mouth. They have been performed by me repeatedly many, many times, with very good success in most cases.

In the treatment of all cases of trifacial neuralgia the nerve that is diseased may re-develop and the pain may recur. I have operated on patients for whom osmic acid has been injected, for whom deep injections of alcohol have been made with temporary relief, and have found in making skiagraphs sometimes the teeth were malposed lying in direct contact with the nerve, and exerting pressure and being the primary cause of pain. It is needless to say that anything like alcoholic injections or injections of anything in a case of that kind would result only in temporary relief. It is very much like using a narcotic or an anesthetic for the purpose of controlling pain in certain cases. The relief is only temporary, and as soon as the effects of the drug pass off the pain returns. In these cases sometimes we find that when the nerve is exposed it will be hypertrophied or increased in size to two or three, sometimes five times its normal caliber, and at the point where it makes its exit from the bone it will lap over the bone, and then the bone, having

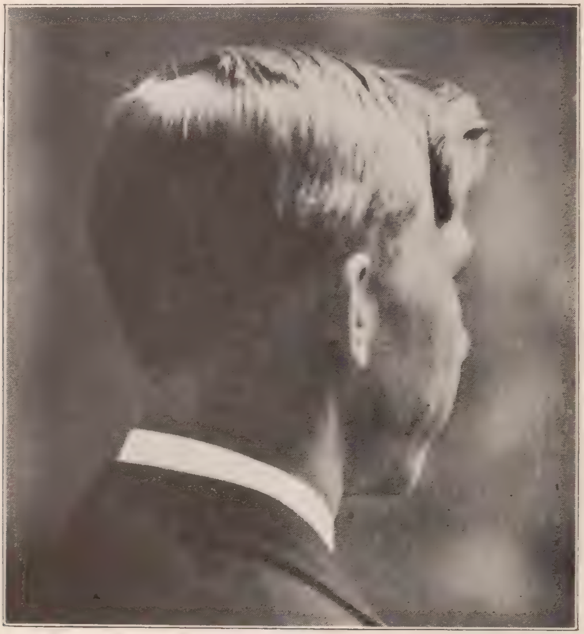

Fig. 6. Five Years After Operating.

no opportunity to expand, great pressure is made upon the nerve at that particular point which is the exciting cause of the neuralgia. I have found in a number of cases in removing the infraorbital nerve that it was enlarged, and it would be like a tree banded by a steel band, which restricts the growth of the tree within the band but outside the band the tree grows larger, or like a tree into which a graft has been made, where the graft becomes larger than the trunk of the tree grafted. It is so with a nerve long subjected to irritation. The bony wall surrounding the nerve restricts its growth while outside this bony wall, the nerve sometimes grows enormously and increases in thickness six or eight times its normal diameter. It is easily understood that the nerve in a state of irritation within the bony wall can not take on growth. Confinement and pressure necessarily must cause pain.

I have found in making pictures for class work that the most satisfactory way is to make them in the form of stereoscopic views. Putting them before students in that form. In that way every detail of the defects is brought out most satisfactorily.

A very curious accident occurred not long since in a patient in the practice of Dr. C. C. Rogers. This man was sitting in a billiard room where a game of billiards was being played, and while he was there a ball was hit, bounced from the table and struck him in the malar process of the maxillary bone, the effect of which was to drive the bone back. The blow was so violent that it made a depression in his cheek, which shows fairly well in these photographs.

While I was leaving the operating room Dr. Rogers asked me to look at the case and tell him what I thought he ought to do. I suggested that it would be well for him to elevate that piece of bone back into place. He said, would you open it on the outside and let the bone out? I said no, I would not do that, operate within the mouth. The patient was put under an anesthetic, a lever was passed directly through the antrum, behind the bone and the fractured bone pried out. It was easily done. When the antrum was opened a small lever was put in and the bone carried out when it snapped back into place. The man has recovered without any deformity.

This cut which you have seen before, shows how to treat the lower jaw after one-half of it has been taken away in removing tumors or from necrosis, etc. This simple appliance will hold the fragments of bone in place and thus preserve the proper occlusion of the teeth of the mandible with the teeth of the upper jaw, until the process of cicatrization is complete on the side from which the bone has been removed. Cicatrization once complete the bone will remain in its place and a normal occlusion of the teeth will be preserved.

Three or four days ago a patient, a woman, came to me who had been shot. The shooting occurred some three or four years ago. The surgeons who saw her were unable to locate the bullet, they thought possibly she might have swallowed it. While they examined the passages from the bowels carefully they were unable to find the bullet. It had disappeared somewhere, but they were unable to find it. I was curious to locate this bullet. I sent the patient over to Dr. Lewis, the skiagrapher, and he made three skiagraphs and found

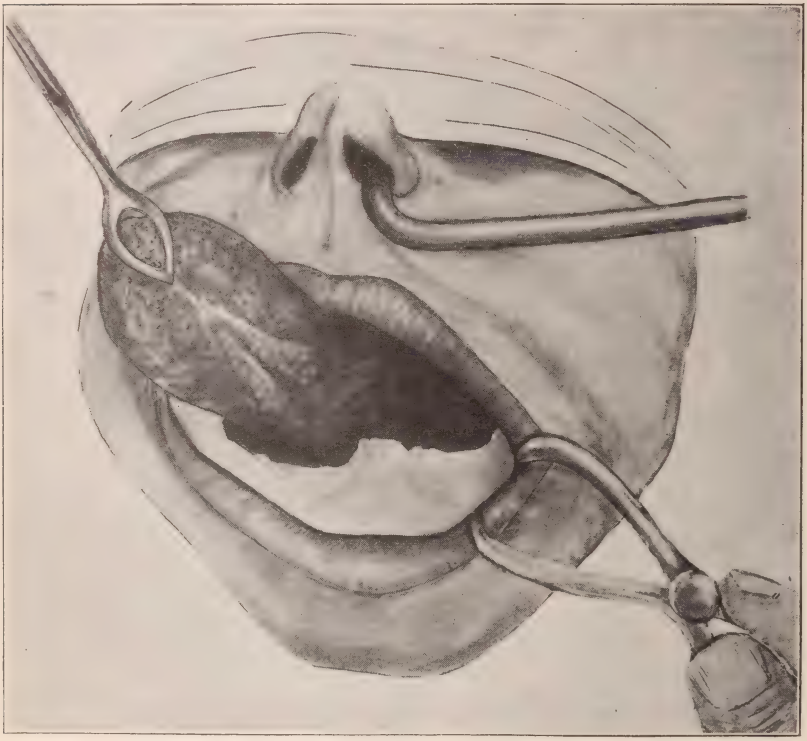

Fig. 7. Removal of the Mandible Orally.

the bullet. This woman came to me because she had a sinus, just at the tuberosity of the upper jaw on the left side, and a very deep depression in her cheek where the bullet entered just a little in front of the anterior border of the masseter muscle. You will notice that in the small plate the bullet shows plainer than in the other one. It has changed form, it is flattened somewhat. The question arises as to exactly where it is. It can be located by making another skiagraph from before backwards, after which I intend to take it out and remove the diseased bone that has been there probably a long time and which is the cause of the suppuration.

CONDITION OF THE TEETH IN RELATION TO PUBLIC HEALTH.*

BY DR. W. A. EVANS, COMMISSIONER OF HEALTH OF THE CITY OF CHICAGO.

The work of the Health Department, ladies and gentlemen, undergoes the same evolution which society undergoes. It starts with the things that are simpler, the things that are more easily understood, that are more plainly apparent, and it evolves into things more complex, more difficult of understanding, and which society finds it more difficult to grasp and act upon.

Primarily, the work of the Health Department is to protect the community against nuisances—things that offend the senses, things that are not pleasant to people who are interested in their neighborhood. This is the work which the Health Department first finds as its labor. The next thing it is called upon to do, as it becomes more active, is to take charge of, and in some measure control contagion. There are health departments in this country that have not progressed beyond this second stage. It is relatively easy for the community to understand the relation between cases of scarlet fever and susceptible children in the neighborhood, or cases of smallpox and susceptible adults, and by reason of the fact that the community can and does understand these relations they support health departments in discharging their duties in regard to them.

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*A lecture delivered before the Chicago Odontographic Society, September 20, 1910.

You will understand that before it is possible to enact any law it is necessary that the community should understand clearly the necessity for such law, and back of the enactment of every law there must lie community education. Relatively few of the laws enacted are capable of enforcement, and this is due to the fact that, the laws having been enacted, the community interest tends to quiet, at least for the time being, and in consequence there is not the community backing that is necessary for the enforcement of the law. In consequence there is a necessity for a second quickening of community interest in order that there may be an enforcement of the laws previously enacted, and, therefore, when health departments have progressed to only a certain point the measure of responsibility for the degree of progress that has been made, and the measure of responsibility for the limitation of effort that exists, rests not with the administrative arm of government, nor yet with the legislative arm of government, but with the sentiment and intelligence of the people of the community.

Therefore, when I say that there are departments of health that have not progressed beyond efforts to control contagion, I say that there are communities responsible for those departments of health in which community intelligence and community conscience have not progressed beyond the point where they can see any difference in the relation of the different members of the community along lines of health, save as it concerns contagion.

Health departments, then, as a result of further evolution on their part, which evolution is founded on further evolution on the part of the community, are beginning to understand that there are other conditions than contagion in which there are community relations. We take a child from a family because we recognize that however acute may be the interest of the mother in her child, that interest is not as great as the interest and right of the community in the child when it has scarlet fever or diphtheria; that however fundamental may be the rights of the parent in the child, the rights of the community surpass those of the parent, inasmuch as the child becomes a bearer of contagion.

It is, however, relatively easy to understand and appreciate these relations as we come to see that men do not live their lives alone, but that the life of every man entwines with the life of every other man, and that every citizen of the community in part sustains the life of every other citizen of the community.

It is more difficult for us to understand the relation of the community to the man who has consumption and who does not exhibit the disease for months and sometimes years after the things which caused it have been in operation. It is difficult for us to understand that the man has consumption because the community deserves for him to have consumption; that there is no broad injustice, but that communities and individuals achieve what they earn; that Chicago has consumption just in proportion as Chicago, by its method of living, earns consumption, and that Chicago will be freed from consumption when it so lives as to earn its freedom from the disease. It is more difficult for communities to understand that the man who falls by the wayside in a lodging house on West Madison street represents a sin of society; that he represents the workings of communities gone wrong; that he represents the triumph of unreason, injustice, and wrong manifest and in operation, and that it is the duty of society to look at such an individual not as one obsessed with devils, not as one to be cast out from the community, but as one who is bearing, oftentimes in a vicarious way, the sins of society, and the burden, responsibility and duty of it all rests upon the shoulders of the members of society. We come to understand that the child who is blind as a result of venereal disease neglected is cursed; and being cursed, is a burden upon itself, but more than that, is a burden upon all of society. We come to understand, furthermore, that the burden is a burden that society must bear, the responsibility for which rests with society.

We cannot consider these things, ladies and gentlemen, without having our minds wander far afield, without understanding and understanding clearly, that every man is his brother's keeper. Not only is this true from an altruistic standpoint, but from a concrete standpoint. No man can so guard his foresight; no man can so fence his family around about but that the effect of these ills and errors and injustices will come home to him. Health departments are coming to see this far clearer than they have seen it in times past.

I remember a few years ago, in fact just three and a half years ago, when school inspection started in Chicago for the second time. It was about ten years previous, after an epidemic here, that we had school inspection. It started before the community was ripe for it, before men came to understand that life must be unselfish if we are to accomplish anything. The community not being alive and ready for school inspection, school inspection stopped. It was resumed three and a half years ago as a result of an epidemic of scarlet fever that spread over the northwest part of the city. The first duty of the school inspector was to look over the pupils for contagion. The underlying principle of it was that in the school room there would be gathered together a large number of susceptible individuals. It was, then, nothing more than a convenient and economic way in which to look for contagion. This kind of school inspection continued not more than one year before the broader and better idea of community responsibility began to gain ground, and, as a result of that, in 1908, to the duties of the school inspector searching for contagion there was added the duty of looking for physical defects.

I have before me the report for the first part of the school year, 1910. There were 77,010 students examined. Of those 35,974, or 47 per cent were found to be defective. The total defects found amounted to 81,609, showing that in more than half the individuals two defects were found existing in the same individual. The principle underlying this work of physical examination in schools is that the community cannot afford to have a child neglected, from a physical standpoint: that the child neglected in the first place does not maintain itself in the school room, does not make grades as rapidly as the normal child, and in consequence requires more years to complete its education than the normal child.

There are many here who are teachers, and every one here has had educational experience of some sort or character. We all know that the pace at which a class goes is not determined by the more rapid learning members of that class, nor yet is it determined in whole by the average rapidity of learning on the part of the members of the class. It is most largely determined by the capacity of the poorer members of the class. There are students in every class who are being held back, so that standard of work to be accomplished in the class-room in great measure is determined by the subnormal members of the class, and that is expensive and horribly expensive. Perhaps you do not know that more than half the funds collected by taxation in the City of Chicago go toward the maintenance of the schools, and that the expense of the schools is greater than the expense of all other arms of government combined. Anything that adds to the cost of maintenance of the school adds materially to the cost of maintenance of government, but that is much the more unimportant part of it.

The child that is neglected not infrequently drops out of school, and so grows up uneducated, or improperly educated. The result of the child absenting itself from school works out in this way. The child is not honestly out of school, and there is no person, man or child, that does a dishonest act but that his moral fiber is influenced by that dishonest act. The child gets out of school for a day. The next day he plays "hookey," and he is not quite so innocent. After a bit there creep in all kinds of immorality. In consequence of this the child is twisted mentally, physically and eventually morally. That child is going to grow up a man, and a man with improper development. He moves in a certain stratum of society. He takes part in politics in that stratum of society. Let me say to you that he influences legislation, and influences the administration of law very much more than does the man in the better stratum of society. He pays more attention to the game of politics. He is of more consequence, from a political standpoint, than is the man who is better balanced and better developed. There is not a law on the statute book that does not represent a compromise between things as they should be, and things as people of this type see them, and the most expensive thing, then, from a community standpoint is the existence in the community of this class that has been undeveloped, and who represent the neglected children.

Now, of what consequence are the errors in the development of teeth in this picture of the neglected child? In the first place, we come to understand very much more clearly than ever before that a considerable part of contagion is spread through the mouth. I was at a meeting of the American Public Health Association in Milwaukee last week, and I heard Dr. Hill say that so far as scarlet fever, diphtheria and measles were concerned, all other evidence of the spread of disease could be neglected, and that those diseases could be controlled if we took care of the secretions of the nose and mouth. This is probably just as true of pneumonia, and nearly as true of consumption as it is of these other diseases. We are exceedingly prone to forget that there are crypts in the mouth that are not located in the tonsils or pharynx. While it is important, when we look into the mouth, to see if there is a possibility of diphtheria or scarlet fever germs remaining behind after the patient is clinically well, still we do not discharge our full duty when we look at the tonsils alone, or adenoid or lymph recesses. There is a possibility that the throat, in which there are no crypts containing diphtheria or scarlet fever germs may still be guilty of spreading these diseases through cavities around the teeth. We are just getting the doctors to understand that it is necessary, before they discharge their cases of diphtheria and scarlet fever to look into the tonsils. We haven't got them to understand that it is also necessary to look at the teeth and see whether there is a mass or masses of decaying matter in and around those teeth harboring diphtheria, scarlet fever, measles, pneumonia, or tuberculosis, and that these cases should not be released from quarantine, or held as safe for the community until their possibilities have been eliminated.

We have not gotten that far with regard to the teeth, and of course we haven't gotten to the next step, and that is to understand the community relations of neglect of the teeth along lines other than contagion. We have not got the doctors, and of course still more we have not got the people to understand that if the teeth are neglected, decayed or badly occluded, the child will not masticate properly and will not digest the food properly, and that the child that does not digest food properly will not assimilate properly, and, by reason of that will not have a proper physical or mental development, and we cannot have good, sound, sane, logical, well balanced men and women until their bodies are properly developed and nourished.

Now what are we going to do about all of this? I have been attending dental meetings in different parts of the country for the last several months where this subject has been discussed, and I have been struck with the growth of sentiment in your profession which has been reflected in some measure by the people at large. I was at Denver, at the meeting of the National Dental Association, and I saw an exhibit of the Committee on Oral Hygiene, and I saw that same exhibit at the last meeting of the American Public Health Association in Milwaukee two weeks ago. I not only saw that exhibit, but I saw the interest taken in it by the dentists of Milwaukee and the people in Milwaukee, and I believe it will be relatively easy for the dental profession to convince the people of this country that the teeth of the children have been too long neglected for the welfare of the people themselves, and have been to long neglected for the welfare of the dentists themselves.

You are asking legislation to protect you in the exercise of your duties as dentists. I am sure that you feel that you are not being appreciated, that you are not having the understanding and support on the part of legislators that you deserve. Let me ask you this question. For how much of this are you responsible? How much attention do you expect on the part of legislators who are elected by the people, the great majority of whose teeth are neglected? How much can you expect the people to understand the necessity of good teeth the advantage of good teeth and their proper protection so long as their own teeth are neglected? It is quite natural that they are fairly well satisfied with themselves, knowing that their teeth are neglected, and being satisfied with themselves they tend to belittle the statements of those who make it, as they believe, unduly important. You will never have the legislative backing that you deserve, and for which you are seeking, until the people have their teeth better cared for than they are at the present time.

I have before me here a little book that has just been issued by the Illinois State Dental Society, and this is proof to my mind, if further proof is needed, that your societies are awaking to their responsibility, and understand fully their relations towards this great question. Concretely, the Chicago Health Department, in its next budget, is going to make recommendations along this line. It is going to ask the City Council to make some provision for inaugurating this movement in the City of Chicago. But you are to understand, gentlemen, that this is but a beginning. You will understand that if this is adopted by the City Council it will not represent a comprehensive handling of the subject. It will represent but the tip of the wedge. It will not mean that you, of this Society, may cease your effort, but it will mean that you must redouble your efforts, if it is to be made effective.

Now, gentlemen, I am going to close with this thought: I do not believe that we can help the unfortunate member of society by attempting to ignore him any more than the ostrich can forget his dangers by sticking his head in the sand. I believe the man that cannot and does not take care of his family, the man that cannot maintain himself in the competition of life has got to be reckoned with as a reality. We cannot get rid of him by saying that we do not approve of him, we will not encourage him or do anything for him. He is here. He is part of this community. We use him in so far as we can use him; we receive from him whatever he is able to contribute to society. But, whether we do or do not, he is part of the great family of men, and, leaving aside all altruistic ideas and all Christian considerations, if we are to do the best for ourselves we have got to take care of him, and if we do not want him we cannot get rid of him by ignoring him. He is here, and we have to reckon with him, and with the deficiencies that are his as a result of inheritance over which he had no control, and environment over which oftentimes he has had as little control. You cannot say that because this man is not equal to the competition of life we must not do anything for him. If you do say it, and act upon it, you will pay for your action. You have got to handle him with wisdom, but you have to care for him, or he will be on your neck ten times as great as if properly cared for.

Don't you understand, ladies and gentlemen, that all society is divided into two classes, those who carry, and those who are carried; those who produce, and those who consume, and that by ignoring a man you make him no less a man to be carried. If the community does not carry him, then philanthropy must carry him, and if philanthropy does not carry him, then he will carry by cheating and destroying property. All society is divided into those that are fit, and those that are unfit, and the fit have got to carry the unfit, and will always carry the unfit in one way or another. The remedy is to breed men and women who are equal to the competitions of life; to give the child a fair opportunity to be properly developed, to give it intelligence that will make it possible to grow; if there is not individual intelligence, then to supplement it by community intelligence. It is through this method of handling the problem of the defective that the defective is to be eliminated, and there is no way of eliminating the defective except through this means.

RECORD OF THE STOCKYARDS FREE DENTAL DISPENSARY.

BY DR. J. W. BAUMGARTNER,
Secretary of the Englewood Dental Society.
AND MR. J. J. O'CONNOR,
District Superintendent.

The Stock Yards Free Dental Dispensary was opened April 13, 1910, after three months' consideration of the project by a Dispensary Committee of the Englewood Dental Society and the officers of the Stock Yards District, United Charities of Chicago.

On the opening day the dispensary equipment, all of which was entirely new, consisted of a Diamond chair, Electro Dental engine, an R. & R. cabinet, and such other instruments and supplies as the Dispensary Committee had selected. The total equipment was valued at considerably more than $600. A double bowl fountain spittoon and other equipment has since been added.

The clinic is located on the dispensary floor of the Charity building at 723 West Forty-seventh street, the southeast corner of the stock yards. The building has a north front. The operating room has been done in white enamel, permitting of proper care. It is possible to communicate by phone with the dispensary from the Charity office in the same building. All questions concerning the eligibility of the patient for free treatment can thus be easily and quickly settled.

The following is a report of the operations in the dispensary since the first clinic April 13, 1910, for the six months to the beginning of the fiscal year, October 1, 1910.

Total number of operating days	42
Total number of patients	138
Total number of kept appointments	362
Total number of operations	542

THESE ARE THE OPERATIONS.

Amalgam fillings	69
Cement fillings	45
Gutta Percha fillings	17
Teeth and roots extracted	155
Roots filled	25
Treatments	231
Total	542

To October 1 the cost of the drugs, gutta percha, cement, amalgam, new instruments, etc., was $16.97. Without adding to the supplies on hand which that amount purchased, it was estimated that at least thirty more children could be treated. This means an approximate cost of $17 to treat 170 children, an approximate average of 10 cents per child. Thus, by expending from 10 cents in an average case to 50 cents in an unusual case, on a child's mouth, the teeth can be put in good shape. This dispensary enduring, it will be possible to follow the child until he or she is of an age to begin to pay for necessary dental work.

There have been forty-two operating days. For the first seven days the clinic was run without the use of the dental engine because of difficulties encountered in having the electrical power installed. This means that for the first seven weeks it was not possible to do much more than to allay pain and to extract. All of the fillings have been made during the last seventeen weeks.

For the first two months, or until June 14th, the date when two clinics a week were started, the dispensary was groping its way. There were no dental dispensaries in Chicago, whose methods and systems could be studied. It was necessary to go far for information, and those points which were secured were not always applicable to this dispensary for the reason that it is an absolutely unique project. It is the first dispensary organized and maintained by an organization of dentists and a Charity Society. In this particular case it means that Charity Organization Society methods are used. The case of an applicant when not already known to he charity office, is invariably investigated to ascertain the family situation. This is in line with modern methods used in the distribution of general relief.

The investigation protects the interests of the dentists, and prevents pauperization of the family. The experience of the members of the Englewood Dental Society, most of whom have been in active practice for a number of years, and whose connection with this particular Society is a guarantee of their reputability and standing, is available for the treatment of the recognizedly poor applicant.

In deciding on the admission of a patient to the free Dental Dispensary, all facts pertaining to the family budget are considered. There is no rule that the total family income must average less than $2 per member per week, etc. Each case is considered on its merits. As a matter of fact, no child has been treated in the dispensary whose family income has averaged that amount for the patients almost entirely come from families on the Charity's records.

The needs of the poor people in the stock yards district are largely medical. There is no district of the city where there is a greater necessity for furnishing free dispensary treatment to worthy applicants. The Stock Yards District Charity office for years had on its records the names and addresses of scores of children with defective teeth for whom under the then existing arrangements little or nothing could be done. Many of these children were the backward children of the schools of the district. Many of them were the tuberculous children of run-down families. In many cases where hospital treatment was necessary, the poor physical condition of the children could be traced directly to defective teeth. In a few cases treatment was so long delayed that necrosis resulted. In the cases of the first 106 children treated in the Dental Dispensary the average percentage of decayed teeth in each child's mouth was 25%.

The delinquent children of the district who came from poor families known to the Charity Office and the Juvenile Court have been found to have very defective teeth. This would seem to be in support of the statement made by the head of the Chicago Department of Health, Dr. W. A. Evans, that bad teeth are a contributory cause of delinquency.

The professional practices of the dispensary are beyond question. Before it was started, advices were secured from Rochester, New York, Boston, Cleveland, and Berlin and Strasburg, Germany, as to practical methods. In the majority of cases, unfavorable reports of the practicability of a volunteer staff of dentists were received. It was stated that a volunteer staff was invariably unsatisfactory, and was advised against.

Co-operation, however, between the Englewood Dental Society and the United Charities has been very close. There are 150 members in the Society. The majority of the men have signed the following pledge:

> I, the undersigned, am in favor of the Free Dental Clinic as explained in your letter, and agree to give at least one half day of my time every two years, or at most a half day a year, to the clinic held at 723 W. 47th St.

It is understood that I will be notified one week in advance of the half-day which I am to serve, and if it is impossible for me to come, I will send a substitute.

(Signed) ....

These pledge cards are now on file in the dispensary office. An efficient system of notification has been arranged, and no difficulty in the matter of attendance of the dentist is being experienced.

As a rule, the dentists become much more interested after their first visit to the dispensary, and in most instances state their willingness to come again before their allotted time, if needed. Some difficult cases, originating in the dispensary and attracting the especial attention of the man in attendance have been invited by him to his office for the completion of the work.

The following is a fac-simile of the record card used: (Pages 31 and 32.)

This card embraces some of the features of the Rochester Dental Society card, and the case record card of the United Charities of Chicago. The front of the card gives a tabulation of the members of the family, and the family budget. In the above it is shown that the present average income of the Blank family is about $4.50 a week, earned by the woman. The physical condition of the parents as known to the Charity office, which has dispensary facilities of all kinds and usually knows intimately the condition of each member of the family, is given. The physical condition and habits of the patient are emphasized. The Treatment Record shows in the Blank case three amalgam fillings and one extraction. On the reverse side, the three teeth filled, and the one extracted are marked on the chart. A resume of the history of the family with the earliest date they were known to the Charity Office is also given.

Cases are regularly referred by school nurses, Visiting Nurses' Association, Chicago Tuberculosis Institute, neighboring physicians, probation officers, settlements and other social agencies of the district. The majority of the cases handled to date have been children from families already known to the Charity Office.

This Charity office was established December 10, 1895. It is located in the center of a district of ten square miles, composing a two and one-half mile swath of the city (Thirty-ninth to Sixty-first streets—from the lake to the city limits) with a population of approximately 325,000. During the fiscal year, 1909-1910, it came

(FRONT OF CARD)

UNITED CHARITIES OF CHICAGO **STOCKYARDS DISTRICT**

DENTAL DISPENSARY

PROFESSIONAL SERVICE
GIVEN BY THE
ENGLEWOOD DENTAL SOCIETY

Date **6/9/10**

Surname **BLANK** Cross References **Schimer—Edw. & Ida**

		Age	Date	Street No.	Street	Rent	Rooms	Floor	ForR	Earns Weekly	Kind of Work
Man	**Edward**	**40**	**3 '09**	**5155**	**Chicago St.**	**$10**	**5**	**2**			
Woman	**Ida**	**37**								**$4.50**	
Children	**Florence**	**12**									
	Nellie	**10**									
	Frank	**9**									
	Carl	**3**									

Nativity { Mother **German**
Father **German**

School **St. Augustine** { Grade **3**
Room No.

Where Born **New York City**

Teacher **Sister Carlena**

Check Name of Patient

Color

School Nurse

PHYSICAL CONDITION OF			HABITS OF PATIENT			
Father	Mother	Patient	Dentifrice	Brush	Irregular	Mouth Breather
Cripple Paralyzed	**Fair**	**Fair**	**No**	**Irregular**		**No.**

OTHER CONDITIONS OF PATIENT

Mental	Saliva	Occlusion	No. of Teeth	No. of Defective	Percentage
Good	**Acid**	**Poor**	**23**	**6——** **4 molars**	**43%**

Sent by	Address	Telephone No.	Passed on by	
U. C. Case	**Stock Yards Dist.**		**E. P. B.**	✓ Accepted Rejected

TREATMENT

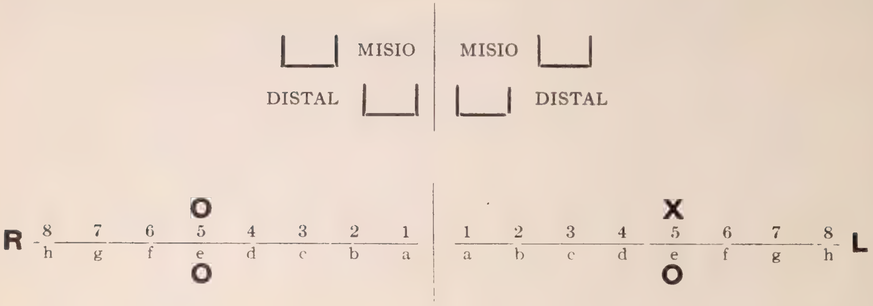
[Give date of each treatment and Doctor's name.]

6/9/10. Dr. Broman—Amalgam filling—Extraction—Instruction as to occlusion, paste and brush.

6/17/10. Dr. Roberts—Amalgam filling—using brush regularly.

6/24/10. Dr. Miller—Amalgam filling " " "

(BACK OF CARD)



)— OCCLUSAL —(

Extracted	X	Pyorrhea Treated	Y
Filled	O	Root Canal Filled	I
Cleaned	▬	Superficial Decay	S
Crown	∩	Abscess Treated	▽
Absent	+	Deciduous Tooth	√
Regulated	~		

RESUME U. C. OF C. CASE RECORD

Earliest Date **8/27/08.**

Old U. C. case. Very well known to this district. Man paralyzed for over a year. Man formerly earned good salary as chef for Pullman Co., and yachts of prominent eastern men. Office has spent as much as $300.00 on family.

Mrs. R. sews—earns on an average of about $3.00 to $4.50 a week. Considerable sickness each year in the family. Man now being treated for hysteria and paralysis. Oldest girl being treated for hysteria. We are practically supporting amily. Large record on file in this office.

HISTORY

in contact with 1,190 families, 5,082 individuals. During the last 15 years it has filed records of over 8,000 families. It is one of the largest of the ten district offices of the United Charities.

Its yearly budget is $20,000. Associated with it in the same building, is a tuberculosis dispensary, which during the past two years has examined 1,152 patients. Two tuberculosis nurses attend the dispensary and visit the patients in their homes.

It can be seen that the dentist in the dispensary knows the patient whom he is treating much better than the one he treats in his own office. Active cases of tuberculosis are not treated. The majority of the tuberculous patients treated are children in the incipient stage, whose teeth must be put in shape as one step in the preventive treatment.

As yet little or no prosthetic work has been done in the dispensary. Cases needing prosthetic dentistry are referred to the Northwestern University Dental School, where an arrangement has been made for the handling of such work for a charge of one-half the cost of the material. This charge is usually paid by the Charity Society.

There is a registered graduate nurse in charge of the dispensary It is her work to keep all the records, attend to the instruction of the children in oral hygiene, and to act as assistant to the dentist in the clinic. It is planned to have her visit the homes of the children in order to instruct not only them, but all the members of the family as to the importance of the care of the teeth.

The child must wash his face and hands before going to the chair. After treatment he is instructed in the use of the tooth brush and dentifrice, and supplied with both.

Pamphlets printed in Polish and English, giving simple directions in the care of the teeth are being prepared. On each visit the child is questioned as to whether or not he is following instructions. The prophylactic feature can be better developed when home visitation is begun. Those patients who also attend the tuberculosis dispensary are continually under observation.

The United Charities of Chicago, through people who are interested in the Stock Yards office, has furnished the money for equipment and supplies. It also pays the rent, light, janitor and laundry charges, and the salary of the nurse. The attending dentists furnish all the professional services, and do it in such a way that there have been no charges made that one has passed deficient work on to the next. It is the aim of each dentist to finish as far as possible the work that the child in the chair needs. It has been found that this enterprise has attracted the attention and interest of the dentists of Chicago and many other sections of the country. So far as we are informed, the dispensary is the first in Chicago, not connected with a dental school.

No mention is here made of the many interesting individual cases, or of the observations that have been made as to the condition of the teeth. Other papers dealing with these features are being prepared.

Plans are now being made for examining and treating the teeth of the school children of Chicago. The members of the Englewood Dental Society are heartily in accord with this movement, and will lend it all the support they can muster. The United Charities of Chicago has long recognized the supreme importance of educating the public in regard to oral hygiene, and in its turn will assist as far as it is able. Both have shown their great interest by already engaging in a practical way.

Acknowledgment must here be made of the many kindnesses and courtesies of manufacturers and dealers of dental supplies, especially the S. S. White Dental Manufacturing Co., and A. C. Clark & Co.

PRESIDENT'S ADDRESS.*

BY C. J. UNDERWOOD, D. D. S., ELGIN, ILL.

It may not be quite fair to take it out on the Northern Illinois Dental Society (though even Dr. Griffith wrote "Per Dr. Underwood" so that I made it out "Rev. Dr. Underwood"), but I have and am resolved to get even with the world in general and *preach a sermon.*

Perhaps I owe you some apology for seizing this office of honor that I may afflict you with a sermon. Let me, therefore, recount some of the items constituting my excuse:

I once introduced myself to Judge Michaels of Chicago. After a few moments' conversation, he said, "Dr. Underwood, a-ah, physician? a-ah, minister?"

I was making inquiries about train schedules at Elgin some years ago. After I got through the operator said, "By the way, have you made out your permit yet?" I said, "No." He said, "This will be a good time," and reached for his blanks. I said, "Permit for what?" He said, "Eh, aren't you a minister?" I said, "Oh, the devil! No!"

A short time ago I secured a commuter's ticket to Chicago. The beautiful young lady at the desk wrote down the number of the ticket, the number of rides, and then raised her heavenly eyes and cooed, "Let me see, this is Rev. Dr. Polk, is it not?" Be it known that Dr. Polk is little less than ninety! But, yes, I will say for the young lady, Dr. Polk does wear *side whiskers.* Little choice remained. I had either to preach a sermon or cut off the whiskers. I cut them off once upon a time, and when I met Dr. Stone he said, "For God's sake! Underwood, didn't you look bad enough before?"

A sermon to be worth while should possess one point which can be taken home by the audience. A sermon to be good should be short; to be excellent, shorter; to reach the superlative, the audience must *think* it short when it is in reality long.

My father of revered memory was wont to say at the end of a preamble, often the longer part of his discourse, "Now, I've said all this to say the other." Maybe I have said "all the other" to say this.

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*Read before the Northern Illinois Dental Society, October, 1910.

Only the gentlemen condemned to discuss this paper know that I *have* said "all the other." They have had it long enough to sleep on it. I suppose they *slept,* "What is poison for one is medicine for another." It kept me awake; I have no doubt it put them to sleep.

Following the orthodox style, we have a topic: "The Brotherhood of Man." Condensed under the plugger point of modern intensity it would read, "Love." Does not love in this broad sense mark the difference between the savage and civilized man? Between the barbarian of the dark ages and the chivalry of the renaissance? Between the dentist of today and the dentist of fifty years ago, who selfishly guarded his sweetest bouquet, that is now presented in the name of humanity in the clinic of the Northern Illinois Dental Society?

Love is the silken anchor line,
When lashed to foam the sea of Time
That else would drive with cruel force,
The struggling seaman from his course.

Oh, this marvelous leaven which sweetens the whole loaf, which measures the real difference between man and the brute! It is the "Star in the East," drawing every eye, hovering over the birth of all that is good in man.

In the savage, slow indeed has been its development—almost its only manifestation being toward the sleek and fat missionary. In civilized man, Adam, awaking from a dream, rubbed his eyes and—loved. The first and greatest Dentist had laid a little ribbon of Adamite in Creation's crucible in the morn, and in the Eve presented Eden's landlord with the finest set of teeth the eye of man has ever beheld—warranted (as every dentist has done since) to eat corn off a cob, or bite an apple. Thus was brought into the laboratory of man's destiny, woman's smile, that force alone capable of stirring in his breast the ennobling sentiment we call love. Imagine, if you can, a woman's smile without teeth!

I would have you believe it was that first set of teeth—even "teeth while you wait"—that made it possible for that smile to fuse into one the common interests of mankind. It was the flux which made the solder flow. The smile itself was the solder joining the abutments in the perfect bridge. But even so, beware the smile. Discriminate. Look well to the companions who are to join you to life's responsibilities. Don't try to join 22 carat abutments with 18 carat smiles! There will be a divorce inside of six months.

As the world's greatest preacher says, "This is bully!" I don't mean the sermon, but the chance to preach. But are we not all, we dentists, preachers? The vital question is, do we practice what we preach—namely, good dentistry? It is one best bet we preach good dentistry. Do we practice the best we know? That is all that can be asked of a man—that he do his best. A man cannot go far wrong in his relations with his fellow man if he practices good dentistry, for that means that he is honest—honest with his patients and honest with himself. It means that he is patient—yes—and long-suffering! It means that he is kind and gentle and sympathetic; that he is firm and stern and just; that he is not a drone; that he is a factor in the world's work and worth; that his horizon embraces a broad philanthropy, a loyal patriotism, a progressive citizenship. It is not enough that he should plug and grind and swage to buy the bread he eats, to lay up the penny against the rainy day, to educate his children. These things will not lift him above the common level, will not trace his name upon the enduring tablets of Remembrance, where names are graven only with the chisel of deeds—deeds done in the name of Humanity. Selfishness is the demon with which he is in conflict—a demon of cruelty, greed and violence. Love comes as an avenging angel, piercing the heart of selfishness, sweetening the gall of greed with charity, and healing with the balm of loving kindness. It is necessary that he admit a drop of the honey of brotherly love into the ointment of endeavor, or find, when he reaches life's hill-top with the setting sun touching with gold all the valley of Recollection, that his every flower is ravished of its perfume; his boasted vintage of its flavor.

As pure and sweet as ever rose,
Is that rich blessing God bestows
On stubborn, thankless man,
That better, purer nature—that spark,
Which love alone can fan
Into life, brightening the deep, dark

And turbulent stream,
Where sorrow's shadows seem
To rise like phantom forms;
Gleaming through night and storms,
Welcome as when with vesper light
The bright star shines at midnight
And meets the sailor's eye
Through the tiny rift
In the clouds, that drift
Athwart the trackless sky.

HOW I ANCHOR BRIDGES.*

BY B. J. CIGRAND, D. D. S., CHICAGO, ILL.

I do not wish to discuss the construction of a crown, nor a bridge. We have in days gone by given sufficient attention to the superstructure of crowns and bridges to take it for granted that we are more or less of a unit on the method, be it a Richmond, a gold telescope crown or the setting of a Logan or Brewster and the other porcelain crowns. We have been giving all our time, attention, and research to the subject of the construction of crowns and bridges, to their superstructure, and have forgotten that in mechanics and in engineering no bridge is stronger than its foundation. What would a beautiful bridge amount to, to the Northwestern Railroad, if the sub-structure was weak? Of what service would it be? Now, all of the gentlemen will agree with me that we have largely made that mistake, the best of us, because we have forgotten the substructure, the things upon which our bridge and our crown must depend. Tonight I want to bring to you the subject, how to anchor a crown and a bridge.

We are failing in our work because we are not acquainted with it. We are not as well acquainted with our work as the average stock raiser or the average farmer is with his. Most of the students who take up agriculture in the University of Chicago or Wisconsin know more about the relative exercise of the teeth of sheep and horses and swine than we do of the human race. And we are wasting our lives on histology, and that work is largely in the wrong direction.

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*Read before the Wisconsin State Dental Society, July, 1910.

This is my appeal to you, and the acknowledgements and confessions that I have made to you have been the result of my own experiences. Less speculation, more observation.

I show you here the substructure, the fundamental structure and the anchorage. Almost any root in the mouth can be saved if we will trim it down to sound tooth structure. The tooth and the root may be loose, but if you build that root up properly and restore it to articulation, it will invariably fasten itself again. A young agricultural student in the University told me that people did not comprehend the fact that nature made the teeth for the purpose of biting and gnawing and grinding, and that if you fed swine continuously on soft, mushy and sebaceous products, on which they could not bite and grind, a number of their teeth would become loose and they would drop out.

Prepare the root as in ordinary practice; ream out all broken-down tissue, and depend upon sound structure only; fit the crown, of any make, in the usual manner. Just before setting the crown, apply a bit of wax to the metallic post, and insert in the cosmolined canal. At the first introducion there may be an excess of wax; remove it and, over alcohol flame, soften and trim where indicated. Then reinsert; and after securing an accurate adaptation, the initial step is complete.

Next, take the crown, with its wax-encased post, and invest entirely in the ring of casting appliance; and after freeing the wax from investment, and being assured of the perfect dryness of the case, proceed to liquify the gold or other metal; and, by means of air, steam, or, better still, by suction, cast the case.

Attach to these decayed roots firmly-anchored, well-fitted crowns, affording to them the natural exercise derived only through mastication, there will be restored to their peridental membrane renewed circulation of blood, and, in turn, a vigorous dental antagonism is set up, which is the basic principle upon which rests sound dental organs.

If the root be allowed to remain uncrowned, and its exposed portion is denied contact, nature will inaugurate an effort to throw off the useless member; but when the common rules of mechanics are observed and a crown applied to the apparently dead root, the change which follows is surprising.

The form of casting recommended so accurately fits the canal and adjacent parts that, independent of cement, the crown would be held firmly in place; and with just a film of cement or insoluble varnish, the crown is securely and definitely lodged.

Cement in film form is stronger and lasts longer than in bulk; hence the metal combined with the cement gives us a splendid anchorage.

(The balance of this talk refers to illustrations on the blackboard, and for that reason is not transcribed.)

PROCEEDINGS OF SOCIETIES.

ILLINOIS STATE DENTAL SOCIETY.

FORTY-SIXTH ANNUAL MEETING, SPRINGFIELD, MAY 17, 18, 19, 20, 1910.

THE COMPRESSED AIR TEST FOR ADAPTATION. CONDENSING GOLD. THE POWER METHODS.

DISCUSSION OF THE CLINICS BY DR. CHAS. SOUTHWELL.

Mr. President and Members of the Illinois State Dental Society:

I am deeply appreciative of the honor of being invited to appear on your program. The importance which has been accredited to the investigations as set forth in your March Bulletin and also the cordial co-operation on the part of the clinicians and your officers has been very flattering indeed. I trust that it will prove worth your while,

It is somewhat singular if not interesting to recall that the last time that I had the honor to appear before you was in 1893 with a paper entitled "Compressed Air in Dentistry."

Not many years ago I took a six months' trip with a party of personal friends. The amenities of the situation were fully met at first, but some disappointment entered very shortly, because one of the gentlemen of the party began to feel that he had quite enough to do in caring for his own luggage. I hope this will be the case today. We are taking a short trip in search of some of the meat of a nut—if not the whole kernel. Let the amenities, therefore, be quickly over and let us adopt the old whist maxim of a "warm hearth and the rigor of the game."

As stated in your March Bulletin these experiments have two principal objects in view, namely—the calling of attention to the difference between adaptation and specific gravity, together with the importance of each. Secondly, a study of the different methods for packing gold and the possible advantages of each.

Under the belief that the questions of adaptation will receive ample attention at other hands, I will confine my remarks to the upholding of power methods, especially the mechanical mallet in the form described later on. Let me premise farther, gentlemen, and say that this wide reaching, much mooted subject of gold and its manipulation is dealing squarely with the very heart and soul of dentistry. Gold, in some form, from the day of its inception up to and including the present, constitutes the crux of modern dentistry. In other words it is the most vital subject that may be introduced—not excepting that most heinous foe of the human mouth tartar—and it demands the most serious attention.

Not being connected in any capacity with a dental college and having no such specific object in pursuing investigations along these lines, I trust that I may be excused in briefly stating a few salient facts that led me into the work.

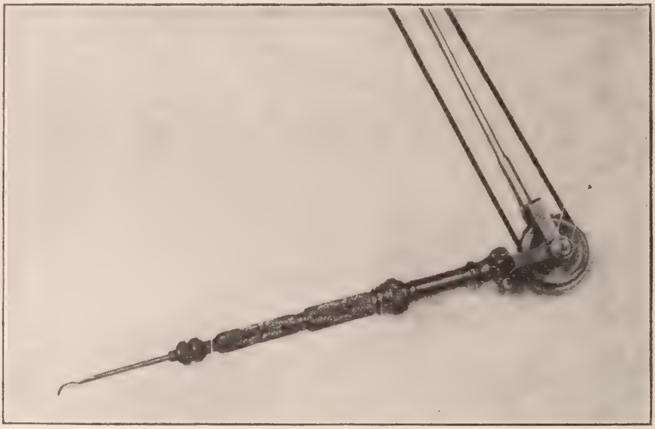
I graduated just thirty years ago and began the practice of dentistry, with much mental fanfare, with an electric plugger on the index finger of my right hand. There was little that I did not know. In fact I have been chagrined, at times, in realizing how much I have forgotten.

In those early days we depended on a battery of bichromate of potash, zinc and a solution of sulphuric acid. Whenever the battery weakened, it usually happened at a most inopportune time, namely, about the middle on a large restoration. The electric plugger, being of delicate construction, was, at times, equally disappointing, so much so, that within a few years, namely about twenty-five years ago, I promptly obeyed the suggestion of Prof. Edwin T. Darby and ordered a Bonwill engine and a mechanical mallet direct from Dr. Bonwill.

This was before the days of electric motors and before Dr. Bonwill's inventions passed into the hands of the S. S. White Dental

Mfg. Co. The engine was an all cord one and the mallet so constructed that the cord passed around a pulley on the side of the cam wheel, as shown in cut No. 1. In this form it may be noticed that the hand piece and wrist joint are entirely removed and that the mallet may not only be turned in any direction but will also run, with no constraint whatever, at an angle of even less than thirty degrees.

Guided, I will assume by commercial considerations, the S. S. White Co. immediately upon gaining control of these inventions, changed the mallet in very many material ways, the most material and fatal of which was the endeavor to adapt it to the most popular dental engine then in use, namely the flexible cable. In all fairness I am inclined to think that I should possibly have done the same thing under the same misconception of the needs of the dental profession. The result has been that the weight of the mallet—made much heavier than those of Dr. Bonwill—plus the weight and awkwardness of the slip joint or wrist joint, plus the constraint and whipping of the flexible cable has militated to discourage a more general adoption of this most dependable instrument.



No. 1. This is a number three model *"reverted"* to the style first issued by Dr. Bonwill. The slip joint and ratchet were removed and a pulley soldered to the side of the cam wheel.

Having always been prompt and unyielding in my endorsement of the mechanical mallet I may not have always remembered to clearly state that my endorsement is solely of the cord mallet operated on an electrically driven *all cord* engine and I take this opportunity to declare myself on this point.

I am very positive that in every instance where the mechanical mallet has been tried and rejected it may be clearly shown that the mallet was of one of the forms designed for a flexible cable engine. I am equally positive that, had the mallet been rigidly confined to cord engines, as originally devised by Dr. Bonwill, that its popularity would have steadily increased, instead of diminishing, as is unfortunately the situation today. It is an instance of a very valuable invention being improved to death under a misconception of the needs of the profession.

Much more could be said along these lines and I may attempt it some day, for publication, but the time, in this instance, does not permit of a more exhaustive statement.

Even as it is, I am not certain but that this touch of history may appear foreign to the subject, but my justification lies in the safe presumption that there are many of the younger members who have never known of the cord form of the mechanical mallet.

This patent failure of popular adoption, of an instrument upon which I place absolute dependence very naturally stimulated a general enquiry on my part into the why and wherefore, especially in view of the very clear statement by Dr. G. V. Black in his text and college books to the effect that the hand mallet is the best method for condensing gold, and I am free to also admit that the enviable loyalty and concerted aggressiveness of hand mallet men, in the Northwest especially, has had no little effect in spurring me on.

I have maintained, gentlemen, with no small show of vehemence at times, that the mechanical mallet, reverted to the form issued by Dr. Bonwill and operated on an electrically driven all cord engine, is easily the peer of all methods for condensing gold (the electric mallet in the hands of some operators admitted as an equal) and struggle as I may to be gracious and genial in the presence of so many personal friends, and staunch advocates of the hand mallet, I still must admit that these tests and experiments were entered into, largely with the view of developing a means of reaching some settlement of the question of the comparative merits of the various packing methods.

The questions of adaptation and condensation, while of the greatest importance, have seemed to me to be rather a natural sequence of the establishment of the various methods in the order of merit, so much so that I have almost unconsciously given them less consideration than the importance of eliminating the personal equation—if that be at all possible.

These remarks are somewhat hurriedly sketched in advance of the meeting and I shall be disappointed if the clinic develops any suggestion of a personal contest. The pitting of men is a most inhibiting feature of investigation work and is bound to result in obscuring the real object. This clinic, therefore, should not be characterized more strongly than a study or contrast of technique and methods.

Returning to the inception of the air tests, which open possibilities in the direction of all other filling materials, especially amalgam, I have considered and experimented with the following materials in which to form the cavities: glass, horn, ivory, human teeth, walrus teeth, shell, celluloid and bone, to find that selected bovine incisors offer possibilities that are very satisfactory indeed—far above any of the other materials named. Killing establishments are of easy access, usually, and the teeth may be obtained and kept fresh without difficulty. In this connection I offer the suggestion that, in the selection of jaws, care be taken to accept those containing no more and no less than six incisor teeth. These teeth will be but slightly worn and still be well developed. The extraction is not easy and a chisel is of great aid in fresh jaws. I may add that if the jaws are allowed to "ripen" the extraction is comparatively easy, with less risk of breaking, but it would be well to have the windows and doors wide open at such times.

Anticipating, as stated, that the subject of adaptation and condensation will be well covered by other speakers I will make mention of but one experiment that I made relative to the comparative adaptability of foil and cylinders against the walls.

With a counter bore I had two cavities made, exactly alike in all respects, in two bovine incisor roots. The cavities were round, of the same depth and purposely without undercuts. In one I used foil strips only, taking twenty-three minutes in which to pack the gold. In the other I used Rowan's cylinders throughout. The time occupied in this was thirty minutes. The mechanical mallet was used in both and I endeavored to apply only the usual care that I use in operating at the chair. The foil filling showed the first leakage at eighteen pounds; the second leakage at twenty-two pounds. After this the leakage was quite general and violent at sixty pounds. By screwing a hook in the center of the filling, from which a pail was suspended, it was subjected to a strain test and sustained 10½ lbs. before pulling out bodily.

The filling of cylinders showed the first and only leakage at 38 lbs., after which there was none up to 60 lbs. This filling pulled out bodily at 6½ lbs.

Admitting that a single experiment is far from conclusive and regretting that I have not the specific gravity to offer, it would seem as if this experiment suggests that the cylinders, while weaker under the strain test (and therefore presumably less solid), made a better filling because the filling stood twenty pounds more pressure than the foil filling before showing the first leakage.

The most significant or interesting feature of this experiment lies in the fact that without any undercut whatever, these fillings should endure—one six and the other ten pounds of dead weight—before pulling out. This suggests the pertinent query as to whether operators do not as a rule unnecessarily jeopardize walls by overdoing the making of undercuts.

Reverting to the question of methods I ask your attention to the progress in the arts, sciences and mechanics as expressed in the various labor saving and product producing inventions outside of dentistry that are more or less familiar to all.

I might dilate or amplify on the sewing machine for instance. How the first was a hand machine, fastened to a table, and then pass rapidly to the present time and state that whenever power is possible no progressive shop conceives of running one even by foot power.

Tool points, in machine shops, are never operated by hand or foot wherever they may be harnessed to power, and the highest type of specialization along this line is the attachment of an electric motor to the machines in an up to date shop.

All up to date marble or stone cutting shops are equipped with a pneumatic tool that is used, especially, for the finest chiseling in the making of letters and the carving of figures.

Again, gentlemen, in the matter of riveting in all steel structural work the hand hammer is a thing of the past, being supplanted by the same pneumatic tool, not only because it does the work quicker but because it is done better.

Why the resourceful dental profession, than which no other profession has made such rapid strides, has failed to keep step in the mechanical aspect of condensing gold is not easy of discernment. One must go behind the scenes a bit and in doing so I think I am not unfair in alleging that the earlier teachers of operative dentistry advocated methods for purely personal reasons—and here is where personal equation unfortunately enters.

For instance, I am given to understand and can readily see why the automatic mallet was advocated by a school in New York City for the reason that Prof. Abbott was the inventor of one.

The Ann Arbor school fostered the hand mallet largely for the reason, I will presume, that Prof. Watling invented or devised a set of hand mallet instruments. On the other hand Dr. Wm. G. A. Bonwill did not head any school. The brilliancy of his mind, especially along mechanical lines, added to his extremely nervous temperament, made him somewhat unpolitic in his bearing and possibly quite the last man to exploit his inventions, which soon passed from his control.

When we contrast the simplicity and cheapness of the hand and automatic mallets with his comparatively expensive inventions and take into consideration also, the fact that the colleges in those days, and at the present, for that matter do not provide sufficient locker room for the awkward and more expensive cord engine head, we may see why so many have been unacquainted with the advantages of this power method.

Not long ago an experienced dentist who is not only dean of a dental college, but the professor of operative dentistry as well, seriously offered the following contentious enquiry. These are his words, "I do not see how you avoid chipping the enamel margins."

Gentlemen, I could possibly find excuse for such an inquiry if it came from a student but in view of his experience and especially his position in a school of learning, my astonishment was so great that I almost appeared at a loss for reply—for if there be a method so amenable, so forceful, so unerring, so delicate, and as speedy as the reverted mechanical or the electric mallet, it has never come under my notice. With the proper point, enamel margins may be approached and covered with as heavy a blow and with the same speed used in the most open portion of a filling. Not only that, gentlemen, but it is my habit to use the plugging point to chisel away and keep down the excess of gold and I do so with *absolute unconcern.*

I have brought to your attention the fact that an all cord or reverted Bonwill mechanical mallet has not been made by the manufacturers (except upon request) since the invention passed from the control of Dr. Bonwill and it is but fair to assume that any and all discouragements that came to and emanated from those who were unfavorably impressed is traceable to a lack of acquaintance with the early, all cord form of the mallets.

Last July, in discussing this subject before the Wisconsin State Dental Society, my friend Dr. Arthur D. Black, made the contention, that "if we can render the fibers of the peridental membrane tense before the blow is struck, we will get a better result. In other words, if the operator will, before each blow is struck, make pressure on the tooth with his plugger point, the tooth will offer more resistance to the blow and he will get greater condensation of the gold." Up to that point I heartily agree but he immediately continues and states that "I consider this a decided advantage to be gained by the use of the hand mallet in the hands of an assistant."

Now—I contend flatly against this assumption for more than one reason.

First: Ordinarily this contention is fully met by having the teeth firmly set by using a separator—but pass that by.

Second: Where the separator is not used the contended advantage miscarries for the reason that hand mallet operators do not as a rule take the time to exert a push before each blow. Not that it may not be done but I contend that it is not done for the very good and sufficient reason that life is too short. Hand pressure before each stroke is a theory that I believe is not carried out in practice.

Third and chiefly: I contend that this is a distinct advantage—that is almost the exclusive property of the power mallets for the reason that the blows are so rapid that a tooth, unsupported by a separator, has no opportunity to recover or right itself and for that good and sufficient reason is constantly firm in its socket. If that is not clear, let me appeal to your sporting instincts and ask you to picture a pugilist tottering from a raining of blows by his adversary. He cannot right himself as long as they continue.

At this appropriate point let me interpolate a brief degression on what is termed the excursion of a blow and for which I offer the following concise definition. *The excursion of a blow is the distance the effect travels after the blow has been struck.* Making a substantial application of this known factor in kinetics and asking your attention to the pain during and soreness subsequent to a large restoration, I believe that it will be easily seen that the short, rapid, decisive blows of the mechanical mallets have much less effect on the tooth and its environment than the far reaching effects of the blows of the hand mallet.

When Dr. Black contended that a push should precede each blow of the hand mallet he in effect admitted that the tooth returned toward position after each blow. In other words he admits that the tooth is constantly coming and going throughout the entire condensation. It should be apparent at once that under such circumstances we have a clear explanation of tears and subsequent soreness. And (let me parenthetically state) an explanation as well, gentlemen, of the popularity of the gold inlays. On the other hand with the rapid fire or short decisive blows of the mechanical mallet which have little or no excursion the tooth *knows no return* and therein you have an explanation of my claim that tears and pericementitis are quite unknown to me.

Much of the speed that I have been able to gain in large proximal restorations is to be credited, in no small part, to a very ingenius form of foot plugger devised and send out by Dr. Bonwill with the first equipment. The manufacture of these points was not continued by the S. S. White Co. Why I cannot say.

I have had the timerity, a very few times, to direct the attention of the hand mallet experts to these points, to be met with *at least* a look that bordered on commiseration. This would be followed by a nice disquisition on small points, millimeters and stepping until I began to believe that this must be so with the hand mallet. Any departure seemed like heresy.

But why *step,* gentlemen? Why not adopt something that you may run with and still not lose your breath?

Furthermore, because a foot plugger happens to be large it does not necessarily follow that all of its surface is ever used at once. In fact, gentlemen, if we discriminate closely, the surface of a gold filling, no matter at what stage, or how large, is never really great enough and at the same time flat enough to permit the whole serrated surface of a large foot point to be on duty at one and the same time. Do I drop my guard and admit the pertinent query as to *why* use a large foot point, when it is not all used?

But I discover as I write, that, for twenty-five years, I have used these large foot points on the proximal surfaces of all large restorations without realizing that the end or either side, as the case my be, are usually engaged in bending down the strip of foil or the cylinders in advance of the other portion of the serrated surface which immediately follows to do the condensing, acting in this capacity, therefore, like the foot of the sewing machine which presses the cloth down in advance of the needle.

Believing that you welcome concrete statements I offer the following fact to which I may be held. The mechanical mallet and points in one instance, about five years ago, enabled me to condense the gold to a specific gravity of not less than 16, in a step cavity in the mesial surface of a large first molar on the upper right side in just seventeen minutes. The individual pieces of gold were annealed one at a time and almost all were passed by myself. The cavity was fully extended and included a slight covering of the buccal cusp. I used only the usual blow but the engine was speeded up.

Yes, the patient and tooth are alive today and as he has large property interests in Chicago I believe that I may offer to show the filling to the Chicago-Odontographic Society should it be considered worth while.

Approaching the close of my remarks I will offer some data that are to the point. Speaking of accessible step cavities in upper bicuspids and first molars I rarely take more than thirty to forty minutes for the condensation. This includes full contour; acceptable margins; a specific gravity not less than sixteen and the annealing and passing of each piece of gold by myself.

My assistant may sit during the entire upbuilding, having nothing more to do than to start and stop the engine. In addition to this the work is comparatively almost without physical strain on myself.

I merely direct the mallet through which the power flows as readily as the ink from a fountain pen.

It is through this method and points alone that I gain these advantages and not through personal skill. It is all open to any man who has manipulative skill inherent in his digits.

I am not altogether certain that these statements will be accepted with the full credence to which I know they are justly entitled. There are many devotees of each method present who are perhaps quite as steadfastly loyal in other directions as I am in the direction of the Bonwill mechanical mallet.

There are those in this audience that may listen well and heed for the time being, who will return to their practices and promptly forget. There are others who, through years of practice, in papers, in discussions and at clinics having committed themselves to other methods are therefore unwilling, perhaps, to avail themselves of the advantages of the Bonwill mallet, equipped as I have attempted to describe. But be your attitude what it may I have no hesitancy in repeating the claims I have made for the reason that they are so easily substantiated in practice and if in practice then also in theory. Addressing myself particularly to the exponents of the hand mallet I most respectfully characterize it as a very dependable yet primitive method. One which is equally exhaustive to the operator and assistant and an unnecessary and severe tax on the tooth and the patient—when *high class operations are performed.* Power methods such as the Bonwill mechanical and Bonwill electric are on the side of progress; in line with the sewing machine; all pneumatic tools for riveting, welding, stone carving, caulking, etc.; in line with the electric engine against which no up to date operator has the least tangible contention to make. In line with compressed air as against the toy bulb still in use by the vast majority of dentists. On the other the hand mallet, the automatic mallet and hand pressure are not in line with progress and more or less suggest hand sewing; the hand hammer in general mechanics; the maul of the stone cutter; the hand burr and the foot engine. Not one word of offense is intended in these pointed words. I hold the friendship of many hand mallet operators among the most valuable of my professional ties and I would in no wise offend, but the failure of popularity of the mechanical mallet as hereinbefore admitted; the text book statement of Dr.

Black that the hand mallet is the best method, plus the aggressive loyalty of hand mallet operators, especially during the last few years, has impelled me to register my protest for whatever it may be worth.

Do me the kindness and justice gentlemen to imagine that it is the Bonwill mallet and the Bonwill points that are talking to you today. I have invented nothing; offer nothing of my own creation; have nothing to gain by these contentions and possibly some friendship to lose.

Be pleased to remember too that this is not a rushing into evidence on my part for I have been quiet these many years.

Attack my arguments and doubt the correctness of my position as freely as you choose but do not question my sincerity or vote me a crank with an over weaning amount of "ego in his cosmos."

In the name of the many operators who have never become acquainted with the speed, ease and efficiency of the reverted mechanical mallet; in the name of a long suffering public and in the name of many overworked assistants, I close by quoting one of the most conservative operators in the United States, who after forty years of experience in the very center of the dental arena urges "Keep up your war on the hand mallet until the dental profession of the West discard it for something better. The public will bless you at once and the profession will later on."

REPORT OF THE CLINIC COMMITTEE.

DR. GEO. C. McCANN, DANVILLE, SUPERVISOR.
DR. LOUIS E. BAKE, CHICAGO, ASSISTANT.

With few exceptions, persons who had accepted appointments on the program of clinic failed to report.

The Committee found it nearly impossible to get notes on all clinics; however, the following stand for what was accomplished. Requested written reports were not received in many instances.

WEDNESDAY MORNING AT 9 O'CLOCK.

1. CLEFT PALATE—F. B. MOOREHEAD:

The patient, a boy of eleven years in fairly good physical condition, presents a case of congenital double hare-lip and double cleft palate. The separation of the maxillary bone is very marked. The intermaxillary bone is attached to the vomer, and unattached to either of the maxillary bones.

The lip was operated upon in childhood three different times, the first two operations being entirely unsuccessful. A partial union was obtained at the third operation, which did not, however, correct the nasal deformity, both nostrils, at the present time, being abnormal. The lip, moreover, is adherent to the inter-maxillary bone throughout its entire extent. The case as it stands today calls for three distinct and separate steps in surgical correction. First: an operation correcting the form of the nostrils, together with a plastic on the lip, which will call for a removal of a mass of cicatricial tissue resulting from the former operations. It will be necessary in this case to make two flaps, securing sufficient tissue from the cheek to form an adequate upper lip. The second will be a plastic uniting the inter-maxillary with the two maxillary bones. The third step will be the closure of the palate. The operations should be done in the inverse order mentioned above, the palate first, maxillary second and finally the lip. The reason for this is obvious. The operation on the palate will be done today and the other operations on subsequent dates.

Operation on the Palate.—With patient under the influence of ether, we take first a periosteal elevator designed especially for the purpose and introducing it along the posterior border of the hard palate, we divide the periosteum at that point, carrying the division inward to the median line and outward to the lingual surface of the molar teeth. The periosteum is further divided along the mediam line to the extreme anterior portion. It will be found at this point that the muco-periosteum is reflected over on the superior surface of the hard palate, and a very important step in this operation is the saving of this tissue. When the division is complete, another periosteal elevator with a blunt edge is used to sparate the periosteum from the bone. The separation is easily carried back as far as the alveolar ridge. The next step is to take a blunt pair of curved scissors and divide the muco-periosteum where it is reflected over the superior surface, along the posterior border of the bony palate.

This same procedure is carried out on the opposite side, when it will be found that the muco-periosteal flaps thus obtained approximate each other easily in the median line. We next take a specially curved needle with a handle attached and thread with silk and carry it through the muco-periosteal flap as near the alveolar border as possible. The loop is brought out through the median cleft while the needle is withdrawn. Four such sutures are introduced on each side, loops being brought out through the cleft. Passing one loop through another the one is pulled through from one side to another. This is repeated with all of the sutures. We then replace the sutures with silver wire sutures. Two strips of lead are fitted, one on each side of the palate, with four perforations corresponding to the positions of the silver sutures. The lead plates are then placed in position and the silver wire twisted in pairs. It will be found now that the two flaps are together at the median line without tension. The final step of the operation is to freshen the surfaces of the flaps and insert a running suture of horse hair, beginning with the tip of the uvula and ending at the anterior limit of the flaps. This brings the two opposite sides together perfectly and under ordinary conditions union should take place rapidly. I am especially indebted in this clinic for the valuable assistance of Dr. A. G. Johnson and Dr. E. P. Swatek.

2. ROBERT J. CRUISE, CHICAGO—SURGICAL TREATMENT OF CHRONIC ALVEOLAR ABSCESS:

No patient.

3. COMPETITIVE GOLD FILLING CLINIC IN BOVINE TEETH, CONDUCTED BY DR. CHAS. SOUTHWELL, OF MILWAUKEE, WIS:

DR. J. L. HOOVER, of Shelbyville:

Rowan's cylinders, all annealed. Fine serrated points, various sizes. Lead mallet, used by self; gold passed by assistant; stepping. Excess. Time, 23 minutes.

DR. G. W. DITTMAR, of Chicago:

Pack's cylinders, Nos. ¾-1; all annealed. Fine serrated points; stepping. Leather faced hand mallet. Assistant malleting; slight excess. Time, 26 minutes.

DR. J. S. REECE, of Bloomington:

Keeton-Williams gold, annealed, for first two-thirds of filling; balance with Pack's cylinders, annealed. Used Keeton-Williams points, also some of White's, all serrated, medium size. Used automatic mallet. Force imparted toward marginal walls. Filling at margins built up in advance of body. Surface unevenly condensed. Time, 35 minutes.

Dr. Charles Southwell, of Milwaukee, Wis.:

Filling started with Rowan ½ pellets, finished with foil, both annealed. Fine serrated points, mechanical mallet. Filling evenly built up with pressure toward periphery.

Dr. C. N. Johnson, of Chicago:

Williams open-center cylinders, first noncohesive, balance annealed. Fine serrated points. Leather faced hand mallet. Assistant malleting. Condensed toward wall, stepping. Time, 26 minutes.

Dr. A. E. Boyce, of Tuscola:

Cavity lined with Williams soft gold. First third of filling made of De Trey's and Keeton-Williams gold, all annealed. For balance of filling Pack's cylinders, annealed, were kept in contact with margins and body of filling built up with Keeton-Williams gold, all annealed. Marginal part of filling built up a little in advance of body. Used Royce points Nos. 4, 5, 6, 7 and 8; also foot point, with hand automatic plugger. Force imparted towards margins. Surface quite easily condensed. Time, 43½ minutes.

Dr. C. C. Corbett, of Edwardsville:

Rowan special gold used for entire filling, all cohesive. Used engine automatic mallet. A helper pedaled the engine. Points with rather large surface area, serrated, were used; also rather large foot point, serrated. Force imparted towards margins, and latter portions built slightly in advance of body. Surface mediumly evenly condensed. Time, 31 minutes.

Dr. R. F. Ludwig, of Chicago:

Dee's No. 4 cohesive foil rolled in pellets, floor unannealed, balance annealed. Finely serrated points. Steel hand mallet. Assistant malleting. Excess. Time, 25 minutes.

Dr. J. K. Conroy, of Belleville:

S. S. White's No. 4, cohesive gold used throughout entire filling. Used Varney's points Nos. 1 and 2, also Dr. Black's foot point No. 4, serrated. Used hand mallet of steel, also hand automatic mallet. Force imparted toward margin. Marginal portion slightly in advance of body. Surface quite easily condensed. Time, 35 minutes.

Dr. C. M. Sawyer, of Jacksonville:

Filling started with S. S. White's Corona, finished with Rowan's cylinders, No. 1, both annealed. Filling built up evenly, malleting toward periphery. Royce points. Automatic and hand pressure.

Dr. Fred W. Gethro, of Chicago:

Pack's cylinders, No. 1, annealed. Pluggers round, 1 mm. serrations. Filling built up evenly, malleting toward periphery, and toward center. Assistant used mallet.

AIR PRESSURE TESTS.

Dr. Conroy:

Stream of small bubbles at margin at one pound.

One very slowly forming bubble near center at two pounds.

Bubbles forming more rapidly at fifteen pounds.

Dr. Sawyer:

Two very slowly forming bubbles at margin at fifteen pounds, and slowly forming near center.

Dr. Gethro:

One slowly forming bubble at margin at one pound. Another slowly forming bubble at forty-five pounds.

Dr. Hoover:

One very slowly forming bubble at margin at fifty pounds.

Dr. Dittmar:

One very slowly forming bubble at gingival margin at sixty pounds.

Dr. Reece:

One slowly forming bubble with no tank pressure. Same bubble forms more rapidly at ten pounds.

Slowly forming bubbles at two other points at forty-five pounds.

Dr. Southwell, Dr. Johnson:

No bubbling.

Dr. Boyce:

Bubbling near center of filling, also one slowly forming bubble at margin at one pound. Stream of rapidly forming bubbles at twenty pounds.

Bubbles forming more rapidly at forty pounds.

Dr. Corbett:

One slowly forming bubble at margin at forty pounds.

Dr. Ludwig:

Bubbles forming rapidly at three marginal points with no registered tank pressure. Bubbling increased in violence with increased tank pressure.

SCORE SHEET OF JUDGES OF COMPETITIVE GOLD FILLING CLINIC.

These markings are percentages based on the relative standing of the operators with 100 as the unit of excellence.

See Rules below.

Order of Standing—	Minutes used in packing.	Percentage based on time.	Excess Percentage.	Margin Percentage.	Leakage Percentage.	Actual spec. grav.	Percentage. based on spec. grav.	Total score.
Dr. C. N. Johnson..........	26	91	100	95	100	19.27	100	486
Dr. G. W. Dittmar.........	26	91	100	95	95	19.16	100	481
Dr. Charles Southwell......	27.50	86.50	100	100	100	17.81	85	471.50
Dr. J. L. Hoover...........	23	100	95	85	90	18.50	90	460
Dr. C. C. Corbett..........	30.50	77.50	100	90	85	17.29	80	432.50
Dr. Fred W. Gethro.......	32.50	71.50	100	95	70	18.63	95	431.50
Dr. C. K. Sawyer..........	35	64	100	75	65	18.69	95	399
Dr. J. S. Reece............	35	64	100	85	55	18.59	95	399
Dr. J. K. Conroy...........	35	64	100	95	65	16.36	70	394
Dr. R. F. Ludwig..........	25	94	100	80	40	15.96	65	379
Dr. A. E. Boyce...........	43.50	38.50	100	95	65	16.77	75	373.50

The totals are made up of the figures in the percentage column only.

Time—Best 100. Three points to be taken from 100 for every minute above that.

Excess—Least 100. Next 5 points less (95); next 10 points less (90); next 15 points less (85); next 20 points less (80); next 25 points less (75); next 30 points less (70).

Margins—Best 100. Next 5 points less (95); next 10 points less (90); next 15 points less (85); next 20 points less (80); next 25 points less (75); next 30 points less (70).

Leakage—None at 60. 100; first leakage between 50 and 60 pounds, 95; first leakage between 40 and 50 pounds, 90; first leakage between 30 and 40 pounds, 85; first leakage between 20 and 30 pounds, 80; first leakage between 10 and 20 pounds, 75; first leakage between 0 and 10 pounds, 70.

Should two or more be equal as to first leakage the judges will take the subsequent leakages into consideration and reduce the scores in accord with their best judgment.

Specific Gravity—Highest 100. For the others deduct 5 points for every .50 or major fraction thereof.

REPORT OF SPECIFIC GRAVITY TESTS OF SPECIAL GOLD FILLINGS.

Springfield, Ill., May 18, 1910.

To the judges of the Special Gold Filling Clinic:

I submit herewith the specific gravities for the gold fillings handed to me today.

C. N. Johnson, Chicago..................	19.27
G. W. Dittmar, Chicago..................	19.16
C. B. Sawyer, Jacksonville................	18.69

F. W. Gethro, Chicago	18.63
J. S. Reece, Bloomington	18.59
J. L. Hoover, Shelbyville	18.50
Charles Southwell, Milwaukee	17.81
C. C. Corbett, Edwardsville	17.29
A. E. Boyce, Tuscola	16.77
J. K. Conroy, Belleville	16.36
R. F. Ludwig, Chicago	15.96

Average specific gravity for the eleven fillings, 17.91. This is the highest average specific gravity for any similar number of fillings by different men that I have ever tested.

Very respectfully submitted,

G. V. Black.

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15. Chair—Non-cohesive and Cohesive Gold Filling, F. V. Brooking, Macomb. No written report.
16. Chair—Gold Inlay, F. H. Swartz, Morris. No written report.
17. Chair—Something in Porcelain, Winthrop Girling, Chicago. No patient.
18. Table Clinic. Dr. C. J. Hugo, Okawville, Ill. Raising the bite with the cast gold inlay.

A case of decided mechanical abrasion, from lower cuspid to third molar on right side, and lower lateral to third molar on left side, these teeth worn off at least one-third of original length.

Restoration secured by two cast pieces, each representing the cusps of molars and bicuspids and restoring almost the original length and articulation.

Attachment secured both by pins and the adaptation of cast cusps to flattened and cupped surfaces of the teeth.

Complete restoration of the facial lines and contour secured by new full upper denture, old denture had been worn many years and the abrasion was so great the space could not be restored with upper teeth without being unsightly and unnatural.

19. Table Clinic—Dr. W. F. Whalen, Peoria. Porcelain Bicuspid Crown with Reinforced Root and Lingual Cusp.

Prepare root almost to gum line, enlarge canals for pivots and fit and cut same. Cut piece of thirty-six (36) gauge platinum plate sufficiently large to cover end of root and leave surplus enough to upturn for lingual band.

After placing platinum firmly upon root end perforate directly over canals with round pointed instrument and pass pins through perforations to place. Warm a piece of temporary stopping and force over projecting pins until well against coping. Then remove and invest root side of pins in investment compound to hold same in correct position. Solder.

Return to chair with soldered pins and coping and burnish platinum to root, marking well the periphery on platinum, then trim to outlined mark. Finish grinding root beneath gum and replace coping and give final burnishing, using old worn foot plugger in automatic mallet. At this burnishing you finish turning coping with pliers until you have obtained band desired width and adaptation.

Take combination bite and impression in good compound and articulate in usual manner. Grind facing to fit and bend pins to adaptation with post.

Before soldering, however, make platinum band of thirty-six or heavier gauge, desired width, and solder same upon lingual periphery of coping, for purpose of reinforcing lingual cusp. Replace upon articulator and wax facing into place and invest and solder same, when it is ready for baking to desired articulation, etc.

The light gauge platinum is used to facilitate burnishing to root, thereby enabling the operator to obtain an absolutely perfect adaptation.

In soldering the lingual cusp reinforcement to the coping the latter may be strengthened by using a plentiful supply of solder thereby thickening the floor to suit any desired case.

Result, a perfectly adapted porcelain crown, reinforced root and lingual cusp against fracture, no metal showing.

20. Table Clinic—Dr. F. P. Nielsen, Vermont. Did not report.

21. Table Clinic—Dr. R. F. Rowdybush, Decatur.

Gave a practical showing at table clinic of cases using the Steele removable facing for dummy in bridge; also a cast base to diatoric teeth for the same purpose. A cast base with a pulp-chamber retention was shown for a molar porcelain crown.

22. Table Clinic—Dr. Geo. D. Sitherwood, Bloomington. A Banded Porcelain Crown.

A banded porcelain crown was placed on the root of an upper central incisor. The broken down part of the crown was fisrt removed and the end of the root properly trimmed with small carborundum stones and the smallest size fissure burs, the latter being used to polish between the teeth at the gingival line. A narrow band cut from No. 28 gauge platinum plate was then fitted nicely to the root and soldered with platinum solder, making a smooth lap joint. The root was then leveled on the labial side and the band bent down with pliers to fit the level. After this the outer side of the band was closed with a piece of No. 28 gauge platinum and soldered to place, thus finishing the cap. Next the pulp canal was enlarged to admit a piece of No. 16 platinum iridium wire of the proper length. A hole was then punched in the cap with a plate punch, the cap placed on the root and the hole enlarged to correspond with the root canal opening and easily admit the wire. When properly placed a porcelain flatback tooth of suitable size and correct color was ground to a level on the upper end of the back to fit the level of the cap and the pins bent down toward the cap and around the pin or dowel. The patient was then required to close the mouth so that a perfect adaptation and occlusion could be secured by bending the pin in whatever direction was necessary. When a satisfactory result was secured, a small piece of modeling compound was softened and placed on the lingual surface of the tooth and cap and extending partly over the incisal edge. When sufficiently hard it was removed with the tooth, pin and cap all in place. Plaster investment, such as used for porcelains was then made, the case dried and heated and soldered with platinum solder, the dowel being soldered to the cap and the pins of the flat-back soldered to the dowel all at the same time, using the oxyhydrogen blow pipe, which is necessary in all the soldering of this kind of work. The tooth was then removed from the investment and properly cleansed. The porcelain of the required shade was then added to the lingual surface over the pins and placed in the electric furnace and biscuited. It was then removed and the shrinkage filled in and built out to the desired form, replaced in the furnace and fully fused, thus, as a rule, only the two bakes are necessary.

When the crown was removed from the furnace the cap was polished and gold-plated. For this two dry cells, and chloride of gold dissolved with water in a small porcelain tray was used. The gold plating is to prevent the color of the platinum showing in a thin blue line at the gum margin which sometimes occurs. The tooth was then cemented in place. When finished, this class of work makes a very strong and durable crown, far supreior to a Richmond or a plain pin porcelain crown. The gold band is objectionate in a Richmond, while the single pin crown often is broken or bent out of place. Nothing but the porcelain appears on the labial surface in this work.

23. Dr. G. L. Kennedy, Villa Grove. No patient.

24. Did not report.

25. C. Leonard Castle, Decatur.

At a table clinic conveyed an instructive idea in the articulation of teeth by the use of the S. T. W. natural tooth forms, thus showing the labial bucal and lingual articulation in the three point contacts of occlusion.

26. Dr. H. O. Sale, Urbana.

Gave an interesting clinic which demonstrated an instantaneous investment for the tacking of backings and posts to facings consisting of ground asbestos mixed with alcohol, which drys immediately by its own evaporation, leaving a hard retentive mass for the parts and subsequent soldering.

27. Dr. H. C. West, Farina.

In his extraction advocated for painless method: First, a sharp, small gauge needle. After first insertion, work the needle in the already anaesthetized zone. He prefers an anaesthetic with adrenelin which holds the solution. Uses hot salt solution for after irrigation.

28. Dr. C. A. McRae, Decatur.

Gave a successful and effective demonstration of somnoform anaesthesia; under which an upper third molar was removed. Patient in very few moments was released with no ill effects.

29. Dr. A. Brom Allen, Chicago.

For a clinic was mis-print. His work appearing under paper and discussion.

30. T. L. Grisamore, Chicago.—Orthodontia.

In this clinic there was shown a number of casts of patients between the ages of 6 and 12 years which would warrant early orthodontic interference.

The clinician took each case, pointed out the deformity as it then existed, the deformity as it would exist if not interfered with, when the permanent denture was complete; also the manner in which the deformity should be treated in order to insure normal occlusion when the permanent denture erupts. He also emphasized the importance of preserving the deciduous teeth and especially the second deciduous molar and deciduous cuspids.

31. J. A. Burrill, Chicago.—Model making for Orthodontia.

32. Dr. M. R. Harned, Rockford.

Presented a chair case with Pyorrhea Pocket on the distal surface of the upper left second molar, involving the bi-furcation to considerable extent; and a pocket on the mesial surface of left upper third molar which was very loose. Treatment—careful planning off of the deposits and polishing the surfaces with port polishers carrying oxide of tin on wood points. Medication—There being no pus present the parts were stimulated with E. A. phenol and aconite.

33. Table Clinic—Dr. G. A. Aigley, Farmington.

He gave the method of root canal filling with sandarac varnish and gutta-percha points. The varnish is cut with alcohol to which oil of cloves and cassia is added. After drying with alcohol the canal is pumped full of varnish and a warm gutta-percha point is pushed into the canal. Claims that varnish adheres to walls when chlora-percha draws.

34. Table Clinic—Dr. W. E. Holland, Jerseyville.

Reported with clinic on copper matrix but failed to give same.

35. E. S. Hodgson, East St. Louis.

Showed the advantage of simple compressed air attachment for the engine hand piece which, by simple lever movement kept the cavity dry and free from debris under the working bur. A similar water attachment for stones and disks in crown operation was also shown.

36. Table Clinic—W. S. Phelps, Monmouth.

The clinic was an amalgam filling in a mesio-occlusal cavity in a right lower first molar. Cavity proved rather extensive so had to cut away most of the mesio-lingual and buccal cusps and make broad occlusal step. Formed square cervical base with inverted cone burs and black chisels (S. S. W. No. 49-50), put in a cement lining and used ivory matrix retainer.

37. J. W. Cormany, Mt. Carroll. Water power lacking.

38. H. P. Brachman, Decatur.

Clinic large amalgam filling; superiority over gold crowns. No written report.

39. A. Don Stocker, Alton. No written report.
41. Table Clinic—H. W. Stott, Monmouth. Gold inlay—faulty heat for cast.
42. Table Clinic—A. Dangar Burne, Sidney, Australia. No written report.
43. Table Clinic—Edgar D. Coolidge, Chicago. No written report.
44. H. Nelson Orr, Chicago. Was excused.
45. G. D. Sitherwood, Bloomington. Reported under No. 22.
46. Thos. T. Baker, Litchfield. No written report.
47. I. C. Morrical, Farmer City. No written report.
48. P. A. Pyper, Pontiac. No written report.
49. J. B. Stannard, Bloomington. No written report.
50. E. L. Burroughs, Edwardsville. No written report.
51. W. H. Barnfield, Kansas. No written report.
52. Table Clinic—Morton C. Tilden, Chicago.

Technique of making cement model from which a cast base for replaceable porcelain crown is obtained.

After root is properly prepared, insert into canal a German silver post that stands to height of adjoining tooth, maintaining rigidity of pin by packing small piece of gutta percha in canal.

Post should be serrated on exposed portion.

Trim metal band, of sufficient size to completely fill space between adjoining teeth, to fit contour of gum.

Have on hand some cones made from the stick form of Detroit modeling compound. Heat point of cone over flame and, holding band, force into position.

Carefully remove the whole thing and, if sharp impression is obtained, replace and take plaster impression as in any crown work.

Remove whole thing intact; paint with separator and, after putting thin film of wax on post, run up root portion and half of each adjoining tooth of impression with cement mixed to putty consistency, then run up remainder with plaster fully covering over the cement portion.

Allow to stand a day and a fine, sharp, hard model will result.

The model thus obtained arranged with opposing bite will greatly facilitate the grinding for difficult occlusion, restoring broken roots perfectly, and greatly reducing time at the chair.

This method may also be used, with fine results, in making castings for Carmichael attachments in bridge work.

53. H. E. Barber, Chicago. No written report.

54. Table Clinic—Dr. Scott P. Bowyer, Taylorville.

Gold cast dummy, using Steele facings.

The root is prepared saddle shape, root-canal enlarged and iridio-platinum pin fitted to same. Then select two facings for the case and grind cervical to fit, one to end of root and the other to the gum (same as old style, using cap and band). Then soften wax sufficient size and press facings into same; then with heated thin burnisher melt wax into the slot in the facings and then drop into warm water again and fit to root, working the wax as stiff as possible to get a good outline of the end of the root; now get the two facings in line and remove and the pin comes away in the wax; trim to the outline of the root and fit again, then trim to shape and thickness on back of facings as desired. Attach sprue wire to wax on the back of the dummy facing so that you can slip off the facings and not cast directly against them. By this method you can replace it in a few minutes and your bridge is as strong and sanitary as ever.

55. Lester F. Bryant, Chicago. No written report.
56. A. E. Schneider, Chicago. No written report.
57. A. B. Patterson, Joliet. No written report.
58. J. L. Hoover, Shelbyville. Excused.
59. T. T. Smith, Canton. No written report.
60. John Bohr, Chicago.

Cast Aluminum Plate by Joining Method.

61. F. K. Ream, Chicago. No written report.
62. L. O. Green, Chicago. No written report.
63. S. W. Fahrney, Chicago. No written report.
64. R. T. Huff, Chicago. No written report.
65. Maud Warner Dunn, Chicago. No written report.
66. Sidney McCallin, Chicago. No written report.
67. C. L. Hine, Tuscola. No written report.
68. Rudolph Beck, Chicago. No patient.
69. W. B. Tym, Charleston.

This clinic was to show a method of cavity preparation for abraded or fractured anterior teeth.

By this method it is not necessary to cut down the proximal surfaces of the tooth, or to remove the pulp.

A groove is cut down the lingual surface to the lingual lobe, under which a pit is drilled; the incisal portion is prepared by countersinking into the dentine, all walls being at right angles. The inciso-linguo-cavity angles are slightly rounded to prevent the fracture of any frail enamel margins.

The advantages claimed are, less irritation from close proximity of metal to the pulp, preservation of tooth structure and appearance, easy access to all margins that they may be well finished and on lines of least resistance.

Gold inlay restorations in this manner give the maximum strength and preserve the appearance as far as is possible when such repairs are to be resorted to.

70. G. E. Fritz, Peoria. Did not report.
71. J. C. Widenham, Jacksonville. No written report.
72. H. K. Barnett, Upper Alton. No written report.
73. Eugene Maginnis, Chicago. No writen report.
74. Arthur D. Black, Chicago.

A file index of some 40,000 cards, which made a ready index for articles on all subjects in Dental Journals from 1839 to date.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting of the Chicago-Odontographic Society was held at the Public Library Building on Tuesday evening, September 20, 1910, at 8 p. m.

Dr. Zinn, the president of the society, occupied the chair.

An address on the "Condition of Teeth in Relation to Public Health," was delivered by Dr. W. A. Evans, Commissioner of Health of the City of Chicago.

Discussion of Paper of Dr. Evans.

Dr. J. W. Dowd, Toledo, Ohio:

Mr. President: In so far as discussing the sentiments of the previous speaker in the way of opposition, I cannot do it. I want to congratulate Chicago on having such a live Commissioner of Public Health. I think if he were backed up by a set of dentists as live as he is that they would soon turn Chicago upside down

I have been engaged as a layman in this work for some five or six months. My friends used to say to me: "What do you know about teeth?" I said: "I have found some things out, and I have learned some. Do you know how many milk teeth a child has in its mouth?" Do you know I have ordinarily intelligent friends, and I have found among them all one man who knew how many milk teeth a child had in its mouth. That shows lack of knowledge on the part of the public on the question of teeth. The motive for the work is about this: Over one of the old Greek temples was the motto, "Know thyself," and over one of the Buddhistic temples there is an inscription: "The only sin is ignorance." Theodore Roosevelt has said that one of the greatest assets of the nation is its teeth. I am one of the men who believe that the activity of Theodore Roosevelt is due to the splendid set of teeth he has.

There were by the last census about ninety millions of people in this country, and it is estimated that only about 8 per cent pay any attention to their teeth, unless they want them pulled, or a plate put in. Think of it. Over eighty millions of people going around with dirty mouths, and in those eighty million mouths there are from three to five points of decay in each. If a man were shooting from a darkened window into the street you would have him arrested, and properly so, for endangering life, but think of eighty million people going around breathing, expectorating, baking your bread, doing your washing, being everywhere spreading these points of disease, as dangerous as a man shooting from a darkened window into a moving crowd. It is time, if we wish to be a healthful nation, that we wake up.

The percentage of decayed teeth among school children is about the same. Let us look into that a bit. I don't know how it is in Chicago, but in Toledo we have about forty pupils in the ordinary school room. There is a dental surface in each mouth of from 22 to 24 square inches. Multiply that by forty and you have 880, making about six square feet of surface. If eight per cent is taken care of it leaves over fire square feet in every school room of dental surface. This endangers all in the school room. If five square feet of unsanitary surface were visible in the school room you would have a health officer there at once. The question arises: How do these submerged people come to be submerged? A good many of them because they have had bad teeth, and after that bad health. I was reading last night about a boy who had been the support of his mother, the father having decamped, and suddenly it was found that the boy had become a truant. Examination showed that his nasal cavities were full of adenoid growths, and the Federation of Charities took the boy in charge. In less than three months he has become a new boy. There is a saying that an open mouth means a closed mind. People who are compelled to breathe through the mouth not only destroy the beauty of the mouth, but they destroy the lines of the face as well. It is the duty of somebody to remove the handicap and give the boy a fair chance.

A few years ago the surgeon general of the United States army refused one thousand men in one year. Why? Because they had bad teeth. Bad teeth cannot make forced marches, nor can soldiers march with bad stomachs. Emperor William, of Germany, is one of the wisest monarchs in the world. He found the same thing to exist in Germany, as it does in England and the United States. Today there is a better inspection of teeth in Germany than any other place in the world.

You cannot have healthy men unless you have healthy children. Dr. Osler said that if he were asked to give his opinion as to which caused more degeneracy, alcohol or defective teeth, he would unhesitatingly say defective teeth. When a man goes to him for advice one of the first questions is: What is the condition of your teeth? When I think of my boyhood I seem to have lived in a world of stomach ache, liver trouble, gastric disturbance, trouble with the duodenum, jejunum and ileum. They used to treat the stomach and the ileum and colon and liver. It is only lately that they have found out where the real trouble is. It is in the mouth. You have a clean mouth and chew food well, and send it down into your alimentary canal, and you will never know you have an alimentary canal, but if you don't do that you will never know you have anything but your stomach.

The public is interested in this question. All they want to know is what ought to be done. If you let them know what ought to be done they will do it. I have talked since the 1st of February, I suppose, to fifty thousand people, a good many children, and I hope I have sown the seed that will result in two good teeth being where there was one before. One thing that I tell the people is that a clean tooth never decays. That may not be so, but I tell them it is so, and I have a good many people working with the tooth brush on that hypothesis.

Another thing is the necessity of keeping the first permanent teeth. Do you know you haven't instructed the people about the first permanent molar. Many parents think that that tooth that comes in about the sixth year is a temporary or milk tooth, and they pay no attention to it, and it decays and is pulled out. There is a crime in law called mayhem, which means the depriving of a person of any member that is necessary for his defence or protection, and whoever extracts a first permanent molar unnecessarily is guilty of the crime of mayhem, and should be punished. I tell them to proclaim from the house tops that this tooth must be saved. Another thing that people do not understand is that ugliness is liable to come not only from disturbing the first permanent molar, but letting other teeth be pulled when there is no necessity for it. A great many people do not know that a protruding jaw can be matched by the lower jaw. One of the surprises that I have for my people is in showing them first a jaw protruding on a screen. Then I show them what does it. Then I show them what the orthodontist can do, and they are surprised.

I want to say to you gentlemen that a man who can take weakness and turn it into strength, who can take ugliness and turn it into beauty, such a man deserves to have his name written high in the scroll of fame.

We have learned a little about the cause of disease. When I was a young married man, with three children about my knee, I used to be scared to death whenever there was diphtheria in the neighborhood. You do not need to be scared of it any more. Anti-toxin in 99 cases out of 100 will cure it. I like to think that I am in a campaign that has for its purpose and object the coming of the time when every child will have a chance to live three score years and ten, and if they be four score years the added years will not be labor and sorrow, but will be strong years to mellow autumnal fruitfulness. You know excitement usually comes with the first tooth. The excitement should begin and not cease until a full set of permanent teeth are in the mouth. If you have done your work properly nature will do her work properly, and the succeeding permanent teeth will come in and do their work.

Last year in New York there were 125,000 babies born, and

15,000 died. A farmer who would not take any better care of his stock than that would be arrested for cruelty to animals, and properly so. Dr. Hurty, of Indianapolis, relates how a woman was threatened with tuberculosis. She wrote to Washington to know whether they could advise her. They wrote back that they could not. A neighbor had a hog that was threatened with cholera. He wrote to the Agricultural Department, and they gave him explicit directions, and the hog was saved, but the woman died. If you want the United States government to pay any attention to you you have to be a hog.

Senator Owen, of Oklahoma, says that there are three million people sick in this country from preventible disease. 600,000 people in this country die annually who ought not to die. He tried to get a hearing, but you know they were so much interested in conservation of water sites and coal in Alaska that they hadn't time to give attention to the 600,000 who die annually. I imagine that we would better pay a little more attention to those who are living now if we are going to have anybody worth living in the future to enjoy this glorious land and this glorious liberty of ours. I have read of some investigations by the doctors of Germany, and they say that the infection of tuberculosis oftener comes into the body through decayed teeth than through enther the oesophagus or trachea, that it gets into the alveolar process and into the glands of the neck, and may be carried anywhere in the body. 175,000 die annually from tuberculosis. It kills now more than war. It is no respector of persons. It enters with stealthy step into the cottage of the lowly and the mansion of the rich and the place of the noble, and wherever it goes it goes to kill. Sometimes it does its work quickly, but often times there are weary years of sickness. There is one way it can be met, and that is by cleanliness, cleanliness of the city, cleanliness of the water, cleanliness of the house from cellar to garret, cleanliness of the person and of the mouth. Pasteur says that the day is coming when all parasitic diseases will be swept from the face of the earth. Cleanliness, they say, is next to Godliness. No, it is not next to Godliness, it is Godliness. I would like to fire your imagination so that you will do all you can to help the good time coming when this world will be worth living in. I would like to see tuberculosis and war and famine done away with. We are getting the upper hand of famine. We know how to store food. We don't know just the price to charge for it, but we will learn that after a while.

The plague does not spread from one nation to another because they control it, and just as they control it between nations so will it be controlled between families. Let's get the world so clean that contagion will no longer be possible, and then we will have a bright and beautiful world, a nice place to live in.

I would like to leave you as I leave all of my audiences: "Keep thy mouth with all diligence, for out of it are the issues of life."

Dr. D. M. Gallie:

Mr. President: As I listened to the message brought to us by Dr. Evans, guardian of Chicago's health, and a layman from Ohio, reminding us of our responsibility, I wondered if it has fired in every person here the same ambition to do our duty as it has in me. I had the pleasure of listening to Dr. Evans in Denver, and read with satisfaction the press comments the next day. I heard of the splendid work done in Rochester and Cleveland. I listened with great interest to the report of Dr. Curley, of Mississippi, when he told of the care and guardianship of the teeth there. I felt that the great state of Illinois and the city of Chicago were lax in their duty, and, sir, I believe that it is the duty of this society to assume the responsibility, and not put it off any longer. Dr. Evans has told us that the budget is made up for the year, and that being true, it is up to the society to have a committee to confer with the city council in supporting this great movement.

I have the honor and great pleasure to share an office with Dr. Evans' assistant, Dr. Spaulding. He repeatedly has told me of the great work they are doing. He said: "Dr. Gallie, we are combating diphtheria, scarlet fever, and all those diseases that are so prevalent with children, but we are not able to do as much as we could do if the dentists would give us their influence and power and advice." He has repeatedly reminded me that the dental profession is not doing its duty. A man died recently in Boston and left two million dollars to endow a dental institute. The press of Boston said that no doubt the result of the splendid endowment would be such that in ten years there would not be enough dentists to take care of 10 per cent of the people who needed attention.

I believe I have the right to say in behalf of the State Society that with the impetus to be given in Chicago that we can start this movement in the large cities all over, and that this year will be memorable in the history of dentistry for the great educational movement in this state.

Dr. Truman W. Brophy:

Mr. President: I desire to state that already the movement has started from two different sources.

Already, in the City of Chicago there has been work done under the direction of a committee from the Odontological Society. One school is fairly well equipped with the paraphernalia necessary to take care of the teeth of the children. We have with us this evening the principal of the Ninety-third Street school, Professor Mayo, who came up by invitation and he will no doubt speak to us if the president will have the kindness to call upon him.

There are 500,000 school children in Chicago, about 95 per cent of whom require dental services. The parents of many are unable to compensate dentists for their attention. Such children will receive free treatment.

I voice the sentiments of those who have spoken regarding the addresses delivered this evening. Not only did Dr. Evans point out the importance of the subject under consideration, but he gave us some very valuable suggestions. I would like to see the Chicago-Odontographic Society take hold of this work and carry it on. I made the statement at the meeting of the National Dental Association in Denver that if we carried out the work in Chicago as it should be carried out, and provided service for the children who require it, there would not be dentists in sufficient numbers in Illinois, Indiana and Wisconsin to do the work in Chicago.

I know that we all feel deeply grateful to Dr. Evans and our friend from Ohio, Dr. Dowd, for their efforts to impart information to our people.

Prof. Mayo:

Mr. President: I just came in as a listener, to hear what the dentists are going to do. Sometimes we do not realize what the schools are doing for us. I have some normal children at the school, and one retarder room and one sub-normal room. One teacher has about twenty-four poor unfortunate sub-normal children. Often times a child does not seem to fit into society. We take hold of them, and give them a commercial or industrial course. The nurses are doing a grand work. They take every child and spend an hour looking over it. It seems to me that it is up to the dentists to do their part, and judging from the good talk you heard tonight from Dr. Evans and Dr. Brophy and the gentleman from Ohio, I have no doubt you will do good work.

Dr. J. N. Crouse:

Mr. President, I was curious to know what Dr. Evans would say. I saw what was coming. It was to point out what we ought to do. I think we are now in shape so that the dental profession will get the necessary backing.

I was in Antwerp a few weeks ago, and the first thing that impressed me there was the care of the horses. Every horse's hoof was polished. I asked some officers the reason of it, and they said that the horses had to be inspected every week, and if a man doesn't take care of his horses they are taken away from him. Then I looked at the drivers, and for dirty mouths they take the cake.

I have a pet in this town, the Chicago Kindergarten College, in which my wife has been laboring for 27 years. After the children attend for a month or two you ought to see how much they are improved.

I am very glad that Dr. Evans has come here and given us this stirring up. He will have to come two or three times before we will all be aroused.

Dr. C. N. Johnson:

Mr. President, this society is to be congratulated on having these gentlemen address us, and we appreciate it. I do not want the impression to go out that the dental profession has been derelict in its duty towards the public. It is only by virtue of the creation of a sentiment that the dental profession is permitted to take care of these children. Some years ago a committee was sent from this society to the Board of Education of this city to offer our services freely, and we were denied the privilege. It is no fault of the dentists of Chicago that the children have not been cared for. I am very much pleased that the sentiment has changed in this particular. This is something that we must take advantage of if we are going to turn this reform to the greatest possible benefit to the coming generation. Ten years from now the people may not be so enthusiastic about this movement as they are today. The wave of some other reform may be occupying their attention. The time is ripe now, and I think I bespeak the sentiment of the profession that so soon as we have an opportunity to take care of these children that they will find the dental profession not remiss in its duty.

Dr. Evans said, in closing the discussion:

A beginning has been made in a certain phase of this work in Chicago. The Hebrew Dispensary on the west side has a dental clinic that takes care of a considerable number of students. In Englewood, for some time, there has been a dental clinic maintained by the Englewood branch of the Chicago Dental Society. Last spring we took the matter up with Dr. Brophy, at his suggestion, and a written communication was received from Drs. Brophy and Johnson. We went to see the Vice-President of the Board of Education. It was agreed that I should go along and lend an ear, and as a result of this talk on the part of Drs. Brophy and Johnson they are starting this dental clinic on the south side of Chicago.

A good deal of popular education has been done by Chicago along dental lines. Now the time has come to broaden this work, and I believe it will be possible to do more work in caring for the teeth of children next year than it was possible to do last year. Not only that, but I believe we ought to have talks in the schools to the children of the upper grades on the subject of the care of the teeth, and literature on this subject should be distributed in the public schools, and I believe that this society and the other dental societies are the ones to prepare and possibly circulate this literature. Dr. Brophy has stated that the number of children to be taken care of is largely beyond the capacity of all of the dentists of Chicago. There are something over 300,000 in the public schools, and nearly 200,000 in the parochial schools, and close inspection would discover several hundred thousand needing attention. If part of them have their teeth filled and cleaned properly the educational effect would be very much better than circulars or pamphlets. Mouths full of cavities lead to other mouths full of cavities, and the best way to get productive dental work is to take care of the dental work that cannot afford to pay for being taken care of. This has an immediate effect.

I believe this subject is one of very great importance, and the more you ladies and gentlemen go into it, the more it will broaden, and the more work you will discover there is for you to do.

A final, and perhaps a dominating thought is this: You are practitioners in Chicago, and take care of a good many families. In those families there are many children. I wonder how many of you are seeing to it that the children in the families you take care of have their teeth systematically inspected, cleaned and cared for. Yet this is a concrete duty that lies very close at hand.

I am sure there was no intention to say that the dentist has failed in his duty toward the community any more than any other profession has failed. We have all drifted in this country. There has been no planning on the part of any unit that goes to make up the community. I am sure that the medical profession has failed in its duty, the merchant in his, and the minister in his. The fact of the business is that we are coming to understand ourselves, and our country. We are coming to understand that the possibilities of our country lie in the conservation of its most valuable unit, namely, the people that go to make up this country; that when people spread out everywhere these things largely took care of themselves, and those that fell by the wayside dropped out unseen and unnoticed. Our civilization is now getting more complex, and if our land is going to prosper and develop, as it is going to, it will prosper by reason of the community plan. It is from this standpoint that the dentists have not discharged their full duty. The beauty of the situation lies in the fact that we see it, and, seeing it, we are determined to right it

WISCONSIN STATE DENTAL SOCIETY FORTIETH ANNUAL MEETING, JULY 12-14, 1910.

REPORT OF THE CLINIC COMMITTEE.

Dr. G. F. Hauser of Lacrosse, Wis., gave a table clinic on casting as applied to crown and bridge also showed how to cast an aluminum plate with a cow-bell.

Dr. O. G. Krause, of Milwaukee, gave a table clinic showing the anatomical arrangement of the teeth. His clinic consisted chiefly of demonstrating a method of obtaining the compensating curve and lateral planes in the wax bites, the curve and planes serving as a guide in setting up the teeth.

Dr. A. A. Jennings, of Milwaukee, gave a table clinic, exhibiting many models of gold inlays and cavity preparations. Also cast bases for detachable crowns, Carmichael attachments, etc.

Dr. L. R. Moadie of Superior, Wis., gave a clinic in which he fitted a twentieth century crown to a left upper central, using Ivory No. 9 cervical clamp with rubber dam, adjusting crown by means of carbon paper and grinding.

Dr. C. W. Benson gave a table clinic demonstrating a method for duplicating plaster models, devised by Dr. Ellis of Buffalo, N. Y. It consisted of preparing the original model by coating it with powdered talcum and rubbing it well into the plaster. Then coating with a stearine mixture which is composed of about one dwt. of powdered stearine to 2 oz. of kerosene.

The model is then placed upon a glass slab and held there by a small piece of bees wax. Over the model is placed a dome, either of metal or plaster, which has a hole in the top.

Into this hole is poured melted gelatine which is allowed to cool over night when model is carefully removed leaving a flexible mould in which 7 or 8 subsequent models may be made.

Dr. T. M. Welch of Waupun gave a clinic of casting a gold inlay for posterior cavity in left superior second bicuspid.

Dr. J. B. Kohagen, of Duluth, gave a table clinic on construction of artificial denture for cleft palate case. It consisted of a plate and a piece of vellum rubber fitting the cleft. The vellum was attached to a small pin in the posterior palatal surface of plate.

Dr. C. H. Forster of Ashland demonstrated Bryant's removable bridge work, with cast abutments and anchorages.

Dr. E. K. Medler of Eveleth, Minn., gave a clinic of a method of replacing a facing on a crown or bridge. It consisted in cutting off the pins in a new facing and drilling holes in facing to accommodate the remaining pins in backing. Grinding to fit and cementing.

Dr. Jay N. Pike of Minneapolis showed models and appliances for applying force in orthodontia. His auxilliary expansion arch showed its efficiency very plainly.

Dr. L. J. Sykora of Duluth showed his method of casting a gold box to receive a Davis crown or a diatoric tooth, also a bridge made by this method.

Dr. A. J. Kuenmuench of Milwaukee demonstrated his method of filling root canals with zinc chloride by means of a smooth broach, and working the cement along one side of the root canal until it finally reaches the apex.

Dr. E. S. Best of Minneapolis showed a removable bridge. It consisted of a saddle supporting the missing teeth and connected by an over arch bar to an attachment on a crown on the opposite side of the arch.

Dr. W. D. Vehe of Minneapolis gave a table clinic of cast aluminum denture.

H. P. Boos of Minneapolis showed a number of over arch bar plates, removable bridges, sectional bridge for abutments which incline toward each other. Bridges made with Steele facings and plates made with anatomical moulds of artificial teeth.

Dr. Cigrand of Chicago gave a blackboard demonstration of preparation of roots for receiving abutments for bridge work. His main point was that the root canal which was to receive a post should be reamed out so as to receive a cast tapering pin and the pin should completely fill the root canal. In other words, his contention was that the maximum of strength could be gained by the minimum amount of cement. He also mentioned the practice of expelling the contents of a chronic abscess by applying suction to the opening of the fistula.

REPORT OF LEGISLATIVE COMMITTEE OF WISCONSIN STATE DENTAL SOCIETY READ AT MEETING JULY 15, 1909.

Your committee on legislation appointed by your president, from among the members of the executive council, for the purpose of improving the act of 1903, beg leave to report, that as a result of as general a consultation with the profession as was possible, and acting for this society, the committee secured the assistance of Dr. Frank Smith, a dentist and a member of the legislature, who introduced a bill in the lower house, known as bill 544A.

The purpose of this bill was to leave unchanged what was considered good in the old law, and to amend all sections which had become practically obsolete, by changed conditions, and also to enlarge its scope, so as to endeavor to meet the present requirements.

We will not take time to go into the detail work, which was neces-

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[This paper was overlooked by the committee when the manuscript for 1909 was sent in for publication.]

sary, in order to follow this bill to its final destination—the executive chamber. Suffice it to say, that everybody worked with might and main to assist the committee in its labors, and as most of you know, 544A. not only passed both houses of the legislature practically unchanged but it also met with the approval of Gov. James O. Davidson, and is now a law.

Your committee does not claim perfection for this law, and probably no law has ever been passed that was entirely free from criticism. But we believe that the workings of this act should be given a fair trial, and we do not hesitate to say, that in its present form, and so far as we now see, it is one of the best laws that has ever been placed upon the statute books of any state.

The principal benefits conferred by this law are:

1. A clear definition of the duties and powers of the state board of dental examiners in harmony, we believe, with the opinions held by the supreme court of the state of Wisconsin. It established for the first time, the principle, that the state, acting through its dental board, has an interest in the mutual attainments and equipment of the person who desires to practice dentistry in this state. Moreover, that this interest in the professional as well as the collateral education of the individual begins at the time applicant presents himself with a diploma from a reputable dental college, seeking admission to the licensing examinations of the state board.

2. Requiring all applicants for license, after the year 1911, to be graduates of a reputable dental college, thus doing away with the system of apprenticeship by law, which has heretofore existed.

3. Requiring all applicants to possess a high school education, or its equivalent, before they can be admitted to the licensing examination or final test.

4. Reciprocity for the benefit of Wisconsin dentists with other states and under proper safeguards.

5. Improving the finances of the board, in order that it may give better service in preventing incompetent persons from practicing in this state, thus benefiting the general public as well as the profession at large.

We can not close this report without calling attention to some of the problems which remain unsolved, not because they were not thought of, but because it did not seem expedient at this time to call the attention of our legislature to those problems. We will mention only a few, namely: Defining the meaning of the word "assistant." Limitations of the individual in advertising his place of business, or his work, and care of the teeth of those who are dependent in the public institutions.

After the facts had been established that seemed timely to embody in a new law, it was necessary to find some one to draft the bill who had had the experience in such matters, and who also understood the requirements of the profession and the general public.

We were fortunate to find such a man associated with the public schools of Milwaukee, Prof. C. E. Patzer. Mr. Patzer kindly consented to undertake the work for us, and applied himself so diligently (which is one of his strong characteristics in anything he undertakes) that, as I previously state, bill 544A, became a law, with hardly a change.

Thanks to Mr. Patzer and the members of the profession who so ably and generously assisted the committee.

Signed:

G. C. MARLOW,
E. A. GATTERDAM,
W. A. GAMBLE,
Committee.

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held April 5, 1910, with the president, Dr. W. V.-B. Ames, in the chair.

Dr. Truman W. Brophy spoke on "Some Pathological Conditions of the Oral Cavity."

DISCUSSION.

Dr. L. L. Davis:

Do you find that with two or three skiagraphs Dr. Lewis always succeeds in locating the source of the trouble?

Dr. Brophy:

I do not think any skiagrapher always succeeds in locating the source of the trouble with one or two skiagraphs. I have had as many as five made in some cases, and then finally found what I was looking for. In one case I had four skiagraphs made and in the last one we found that a tooth was situated in the spheno-maxillary fissure, which was the cause of extreme neuralgia. At first, in this case, I had one, then two, then three and even five before I located this tooth. In fact, the first four did not show anything, but the fifth one did. This plate shows a bullet just behind the angle of the mandible in close contact with he external carotid artery. You see how clearly it is seen in this large plate. There are some skiagraphs so indistinct that they are worthless. The smaller plate here shows the bullet better than the large one. To locate the bullet in this case exactly we must get a skiagraph from before backwards and we will find the bullet when the two angles meet.

Dr. Davis:

You do not know on which side it is?

Dr. Brophy:

It struck on the right side, but we think it is on the left side. When we get a skiagraph from before backwards we will know exactly where it is.

I am not disposed to blame surgeons for pursuing a line of practice that has come down to them through the medical faculty, but I do think that in the light of our present knowledge of these subjects that students today should be given an opportunity in every medical school in the world to become familiar with better and more satisfactory methods of practice, and I do think, as I said before, that if the definition as laid down in most of our encyclopedias and dictionaries of medicine is to be observed and recognized as true, there must be improvement in the teaching in medical schools along these lines. Medicine is defined as "The healing art in all its branches." There was never a greater error in formulating a definition than that, because we know it is not "The healing art in all its branches." We know that the diseases of the teeth are more prevalent than any other diseases known to mankind, and we know that the teaching in medical schools is such that students do not have an opportunity to know anything of any special account about the many diseases to which the teeth are subjected. So long as they are not able to acquire a knowledge of this very important department of pathology, just so long will they continue to make errors as practititioners in the surgical operations that they attempt to perform. I wish it were within my power to impress upon every surgeon the importance of having students trained in the pathology of the oral cavity which, as a rule, they do not have a chance to learn. If they knew pathology of the oral cavity they would go out and make themselves of far more benefit to the people whom they attempt to serve. How that can be brought about I do not know.

Some of my friends have been kind enough to say I have accomplished quite a little in oral surgery, but I feel the most important work of the oral surgeon in this world is to bring about a change, if possible, regarding this vital subject so that our text books may be improved and all the old and what should be obsolete methods of the surgery of the oral cavity eliminated and more advanced and far better methods of practice substituted in their place. I do not know how this can be brought about except through a regular campaign in medical associations. I bring up this matter in a kindly spirit and not with a view of finding fault, not for the purpose of in any way hurting the feelings of any man, because it would not be fair to do that, but to show the importance of training in this field. General surgeons in the past cut in any way they thought was best. Only within the last ten days I saw an operation made which was uncalled for. Incisions were begun at the corner of the mouth and carried back near to the ear to get at the tuberosity of the upper jaw, which could have been reached without difficulty by retractors, exposing the bone and getting access to it. The old surgeons continue to operate as they have done in the past, but the young men should have a chance to learn better methods of operating in the mouth and about the face. I contend that there is no subject today more important in the field of surgery than the teaching of students of medicine how to perform operations intra-orally, and thus avoiding these extensive and ugly incisions which disfigure patients for life. It comes home very close to one. If it were a question of one's wife, or one's mother, or his sister he would think carefully before making a big cut through the side of the face to do what might be done within the mouth.

Dr. Shearer, who is here, is doing a good deal of surgery in the mouth in his city, Omaha. He remarked to me at my clinic this afternoon that he operated on a patient as I operated today. A surgeon of prominence criticised him. It is necessary in opening the antrum in chronic cases to make a large opening through the canine fossa. There were seven of these patients today at my clinic.

General surgeons do not do these operations in this way. The surgeons have not studied dental pathology as they should do, and so they think in order to get into an abscess cavity arising from a tooth it is necessary to make an opening through the cheek. This is done too frequently.

Dr. W. L. Shearer, Omaha, Neb.:

Mr. President and Members of the Chicago Odontological Society: It is a pleasure to me to be a guest of this society, thanks to the kindness of Dr. Brophy, and I feel highly honored to be called upon to take part in this discussion. I do not feel qualified to discuss a subject so far-reaching as this one presented to us by Dr. Brophy tonight. It is impossible to go into the depth of such a subject on so short a notice. This great work of intra-oral surgery as presented to us, and the great work being done by Dr. Brophy, shall always live to perpetuate his name at the top of oral surgeons of the world.

This patient shown to us tonight after an operation for leontiasis of the lower maxillary bone seems to me to stand alone. The results of such work can only be fully appreciated and understood by the operator himself. This subject of intra-oral surgery naturally is most interesting to me, working along that line, and I wish to cite in connection with this discussion an unfortunate condition that came to my notice at meeting of our society a year ago, as a result of an incision being made from the lower portion of the ear downward to the angle of the jaw, leaving an unsightly scar, and not removing the cause, as the abscess for which the incision was made was due to the impaction of the third molar.

Again, the patient was operated upon as the abscess recurred, and this resulting in an ulcer, pus discharging constantly. It was my fortune to remove this impaction, which took only a minute, and the patient recovered in about ten days. The scar was still there, and had this case been treated intra-orally, in the beginning, such a condition would never have resulted. Again, I wish to thank this society for their courtesies, and congratulate Dr. Brophy upon the success of his work.

Dr. L. L. Davis:

If Dr. Brophy has ever done one thing in his life which he can be proud of it is an attempt on his part to revolutionize the surgery of the oral cavity, and I think that long after he is dead his name will be associated with the work along this line and that his name will never die on account of it.

In regard to the cases he has presented to us this evening I can say very little except that he has presented several cases which are of great interest, and what little I have to say will be in the nature of asking questions. Incidentally, in his remarks he referred to the fact that he had seven cases of antral trouble at his clinic today. I want to ask him in regard to the cause of these various conditions of the antrum. Do these antral conditions result from infection or traumatism or from caries of the teeth? We get occasionally empyema of the antrum. Sometimes we have a case where there seems to be absolutely nothing wrong with the antrum at all, yet we have a constant discharge of a serous fluid. In fact, I had one case within the last two weeks where there was a continuous discharge through the lingual root in a first bicuspid. There was quite a large opening, and a pulpless tooth. I opened into the thing in the usual way some time ago and treated it, and the man has had such a good time since that I did not see him for about six months. He came back one day to have some other work done and incidentally I remembered that dark-looking tooth, and I said to him, "Did I fill the roots of that tooth?" He replied that he did not know whether I did or not. I opened it up and removed the cotton, and evidently the opening in the lingual root must have been large, because just as I withdrew the cotton half a teaspoonful of watery fluid came down through there. That discharge kept up in spite of all I could do. I could not control it. I used adrenalin and everything else. I pumped iodin through. I took a gold pointed syringe and forced it up in there, did everything I possibly could and could not dry it up, but by trying not to carry the cotton beyond the root and removing the cotton frequently I gradually managed to close that openinng, so that when I removed the cotton I had just the slightest amount of moisture and I plugged the root canal with gutta percha and he has not given me any trouble since, but it took me three months to get that done. I do not know how large the pocket is or was in that case.

I would like to find out something about these antral diseases, because we seem to get these cases oftener than anything else. Then in regard to this particular case Dr. Brophy has shown us this evening. I want to ask him one or two more questions. With reference to leontiasis, is it an enlargement of he bone within the jaw, or only the outer plate of the alveolus, and is it possible that he removed it all? Can he distinguish the line of demarcation between where the tumor ends and natural bone is in position? Or may it not continue in another part after? I had supposed that elephantiasis usually resulted in death finally, because even after you get at one part and remove it, the disease breaks out in another part, and I was wondering whether the same might not hold true with reference to leontiasis. I am sorry that my discussion is confined to the asking of questions, but these are points that are interesting to me and I would like to know a little more about them than what Dr. Brophy has said this evening.

Dr. J. G. Reid:

The paper presented this evening to me was very interesting from the point of view that I have never seen anything like it. I have had under my observation some smaller tumors, that would appear to rise more naturally from pulpless teeth, and had every appearance of being bony tumors, but upon proper treatment of the tooth with which it was associated it usually passed away or diminished very considerably, if not entirely. Perhaps I have seen half a dozen such instances where there appeared to be a small tumor of that nature, which would partially subside, but not entirely, and yet after the tooth had been properly treated and the roots filled, there was no trouble for years afterwards or there never seemed to be any further increase of the tumor. These tumors would be of such a nature that they would be quite marked on the external surface of the face and very hard. Only last summer I had such a case as that in a boy, twelve years of age, with a lower first molar. He had a dead pulp and this tumor, I should judge, was as large as a good hickory nut. It was very hard and while opening into the tooth and removing the contents of the canals, I never seemed to have any discharge of pus or serum or otherwise, and after two or three treatments this tumor seemed to have subsided to about half its normal, or original, size. The tooth is now perfectly comfortable, but there is still at this time—a year later—a trifle of a prominence in that locality—very hard and very dense, but to all intents and purposes perfectly normal and healthy and well. The question would arise, might that eventually develop into anything like this, or will it remain in that condition? That, of course, I would not know without seeing the patient occasionally for several years which I may have the opportunity of doing.

Dr. Brophy made reference to the fact that not very much progress has been made in the presentation of these subjects by photographs or pictures in text books on general surgery. From my own observation this would seem to be true and it occurred to me that it is pretty near time that Dr. Brophy was getting out a text book. It is a good time to start now. He is young yet, and it would be a good thing if he would write a book on this subject showing how oral surgery ought to be practiced and how these external incisions should be avoided in operating within the mouth. There is no one who is better qualified to do this than Dr. Brophy.

Dr Elliott R. Carpenter:

I do not feel competent to discuss this subject. I want to thank Dr. Brophy, however, for his very interesting discourse, and I would like to second Dr. Reid's suggestion, as I do not know of anyone in the profession of medicine or dentistry who is so well equipped to write such a text book as Dr. Brophy, and I hope others will bring that thought to bear upon him so that he will do it.

There is one question I would like to ask Dr. Brophy in connection with the patient he showed this evening, and that is in dissecting away the tissues at the side of the maxilla I suppose you did not go below the muscular attachments?

Dr. Brophy:

I did go below the muscular attachment.

Dr. J. H. Woolley:

I have been very much interested in the thought that Dr. Brophy has thrown out this evening. There is so much that goes to make up the modern scientist. First, there are so many who fall into the profession of dentistry and medicine who would make better farmers and better blacksmiths, but they have fallen into medical and dental lines, thinking there is a lot of money to be made in these professions, and have simply learned the mechanical and technical parts of it, but they have not had the mechanical mind, the technical mind, the mind that has fertility of resource to be able to grasp complicated problems such as Dr. Brophy has compassed. He has cited cases to us this evening where many surgeons have passed along in a routine way, following lines that were taught in the books and in college. Dr. Brophy's work has grown and developed and his field has been very much enlarged. It is these things that make the modern man, and these are the few men who bring the profession to a higher position.

The operation in connection with the billiard ball case was to me one of the best and most interesting parts of the paper, although the other parts were fine. The manner in which this depressed bone was brought out and put into place was to me very ingenious.

In regard to the medical profession being so ignorant of oral pathology, there have come under my observation many cases where nerve specialists have had under their care patients who have suffered for months with neuralgia of the face, with no explanation and no relief. If there was any relief, it was simply temporary, and by using the X-ray as a means of diagnosis the cause of the trouble was revealed and these cases have been cured.

A very prominent physician who had a case under his care for three months without affording relief referred the patient to me thinking there might be something the matter with the teeth. I discovered a molar root that was decayed, but I was suspicious that the cause of the trouble in this case was in Adam's apple. And so I did not remove the root because I was afraid I would break it off. I sent the patient to a nerve specialist, and on her return I introduced a silver probe (it was a lower on the left side) and followed down towards Adam's apple, and I syringed the cavity out, cleaning out all the surplus tissue there, and I put in about thirty per cent solution of carbolic acid, saturated in cotton. I plugged that up and put the gutta percha there, soft, and used a compress, and after a while I got a little carbolic acid out of Adam's apple, and then I syringed it well, when a lot of fearful looking stuff came out, and I referred her back to her physician. The young lady was cured. I have had many similar cases. And here is another thought I wish to throw out. We see often abscessed teeth. There is a pimple something like a gumboil and we treat that tooth through the pulp canal. Now, I always open up that gumboil, or sinus, and I find conditions that need to be treated from the outside, and you cannot treat the majority of these teeth properly and thoroughly without doing so. I had a case where a tooth had been treated for a long time. There was just a little gumboil outside showing itself and discharging. I opened that up and found a necrosed condition. I found that this tooth had been filled with gutta percha, the gutta percha having been forced through, and then I found in there a piece of gutta percha and the end of the tooth disintegrated. I have had a number of cases similar to this where superficially one would not think there was much trouble, but only a simple abscess, and yet in these abscessed cases I do not believe in filling these pulp canals right away because I believe we want to give time for healing to take place around the root, with new bone formation, and in this way we will get more permanent results. I recall one case that came under my observation which interested me very much. The patient had been under a physician's care for two months and the physician finally wore her out and she wore him out, and he said she would get over her trouble after a while. She went from physician to physician and from dentist to dentist. I got an X-ray and found two abscesses on the bicuspid teeth, one on each side. I opened in there, cured the condition, and the neuralgia passed away at once.

Dr. C. N. Johnson:

It is very late, but I cannot refrain from saying a few words in regard to this talk of the evening. I have been impressed tonight, as I have many times, with the work Dr. Brophy has been doing along these lines. It has been my pleasure to be very intimately associated with him for more than twenty-five years, and I have the conviction that the profession generally do not realize just what he has been accomplishing in that time. Dr. Brophy has been doing things rather than writing them up, and I will say for the benefit of Dr. Reid that Dr. Brophy informed me within the last month over the phone that he would get to work and write a book on oral surgery. (Applause.) That promise was given and I do not believe it will be ignored.

One thing that Dr. Brophy has done more than any other one man in the profession is to call attention to the fact that the average general surgeon has made a great mistake when operating upon the mouth in making external incisions in many instances where the work could have been better done intraorally. I hope he will continue in a good-humored campaign, calling vigorous attention of the medical profession to this particular and terrible abuse. I never see a case of that kind that I do not grieve over it because my sympathies are with the patient. This is said in all kindness, but the general surgeon is doing a grievous wrong to humanity by performing the operation Dr. Brophy has spoken of by means of external incisions.

In regard to the necessity of having X-rays made of these neuralgic difficulties, this was called especially to my attention within the past week. I have known a lady who has suffered terribly for at least five or six years, possibly longer than that. She has been in the hands of some of the best men we have in Chicago, and they are now occasionally making injections to relieve her so that she can live at all comfortably, and I have not felt on account of the eminence of these men like suggesting anything to her. She comes to me after injections into this nerve to have a little work done on her teeth because she cannot be touched at any other time. I said to her, "you and I have been acquainted sufficiently long so that I can say this to you and have it thoroughly appreciated." I said "have you ever had an X-ray made to find whether there was anything in there?" And she said, "no, doctor." I said, "I do not want to interfere with your physician. I am simply talking to you as a friend. Do not go through that ordeal again of having injections made without having an X-ray made, and with a view to finding out if there is something to account for the pain." I told her that the X-ray was a simple thing and it would not injure her in any way, and she owed it to herself to have that done rather than sit there without an anesthetic and have the surgeon give these injections. It is a horrible ordeal to go through, but she has to have this done three or four times a year to retain her reason. I have exacted a promise from her that before she has anything of that kind done again she will have an X-ray made and I am reasonably sure there is something in there. I have hinted that to her on previous occasions, but never came right out and said to her what I have in the last week.

I wish to express my personal thanks and appreciation to Dr. Brophy for presenting this subject in the way he has and I believe the greatest work Dr. Brophy can do from now to the end of his days is to educate the medical and dental professions along these lines because in the field in which he has done his most active and progressive work there is the greatest need for reform that we have in medicine and dentistry today.

I have heard surgeons make the statement repeatedly that trifacial neuralgia could not be cured by operation. This is not true, because I can recall patients upon whom Dr. Brophy has operated and cured, the patients remaining cured six and eight years after operation.

Dr. Ames:

I would like to ask Dr. Brophy to tell us the cellular difference between a bony tumor and bone itself?

Dr. P. J. Kester:

In regard to bringing this matter to the attention of the medical profession, I do not believe that the method he suggests of going at it with gloves would be the proper way to do it. I do not know anything about this subject, but if I undertook to educate the medical profession or anybody else I would present the matter in such a way that they would know what I was talking about. I feel that Dr. Brophy has done a most wonderful work in oral surgery, and if he can be prevailed upon to put himself on record so that both the medical and dental professions would become thoroughly familiar with it, he would be doing the world a great service. The work he has done in the treatment of hare-lip and the constant effort he is making to educate surgeons to operate from within the mouth are things of the greatest importance, and I join with the rest of the members in the hope that he will write a text book on oral surgery and write in such a way that the members of the surgical profession will understand that he is talking about them, and not to somebody else, it matters not whether they are oral or general surgeons.

Dr. Brophy (closing the discussion):

I want to thank you all for treating me so kindly under the circumstances. I recognized perhaps as fully and more so than I ever did my short-comings in appearing here this evening and endeavoring to speak on so important a subject with little preparation.

With regard to the remarks made by my friend, Dr. Shearer, as to the operation he spoke of, I can understand from my experience the difficulties he has before him. As a young man I remember being severely criticized by an aged surgeon for venturing to do a certain operation which was a cleft-palate case in the manner I did it. He declared such a procedure was without precedence, was unsurgical and unwarranted, and that anyone who would attempt to do a surgical operation like that should be educated. It was evidence of a lack of proper education along the lines of surgical procedure in his judgment. Nevertheless, I continued to do it and have been doing it ever since. This remark was made more than thirty years ago, so that you need not feel, Dr. Shearer, at all disturbed if anyone criticizes the method you are trying to put into practice, provided you act in accordance with your best judgment and with the information you have. I know that anything outside the well-beaten paths of medical or surgical practice is looked upon by men engaged in general medical or surgical practice as extraordinary and without precedence perhaps in many instances, and not in accord with the text of the books that appear on these subjects. Many look upon anything outside of that routine as experimental and without sufficient endorsement.

Dr. Davis has asked the cause of antral disease as it appeared in the number of cases I mentioned. I make the statement to the students that antral disease in about 85 per cent of all cases, in which it appears, is due to dental lesions. This is apparent to anyone who is familiar with the anatomy of the bones of the face and if they study them as they should. For instance, if you examine a skull and make a section through it, so as to expose the floor of the antrum, you will find that in quite a large percentage of all skulls you examine that the apices of the roots of the second bicuspids and the first and second molars, frequently the third molar, extend up very high; that they are separated from the cavity of the antrum only by a thin layer of bone, and in many instances the ends of the roots are absolutely uncovered by bone. In a recent study we found only membranes, the pericementum and the mucous membrane, which lines the antral cavity. It does not require any great amount of reasoning to decide that in the event of death of the pulp of a tooth, from shock or any cause, subsequently pericementitis and dento-alveolar abscesses will follow, that the pus from abscesses will, following a law that is pretty generally universal, escape through the surface affording the least resistance; that pus will go into the antrum much more easily than it would go through the external or internal plate of the alveolar process. It is so in cases where the roots do not penetrate the floor of the antrum, or even make an impression or an elevation at their ends, when examining the antrum we find there is only a little space between the ends of the roots and the floor of the antrum. So in many of these cases pus escapes into the antrum. What is the consequence? Infection of the whole mucous membrane, that membrane becoming infected with great quantities of pus, which in the event of the natural aperture between the antrum and nose being open will escape into the nose, and then the patient observes discharges which escape into the pharynx and he may think it is a catarrhal conditions. He has forgotten about the diseased tooth by this time. Scores of these patients are treated for post-nasal catarrh, who have an antral discharge. The physician sometimes fails to discover the dental origin of the disease. Therefore I say, the cause of antral abscess or empyema of the antrum in about 85 per cent of all cases in which it appears is the result of diseased teeth which may come from any condition that will infect the mucous membrane of the antrum, may be due first to diseases of the nasal mucous membrane by continuity of surface of membrane leading into the antrum, and the antrum being secondarily involved. It may be the result of trauma, or the result of some of the general eruptive fevers which involve the mucous membrane. It may also be the result of syphilis, of phosphorus poisoning or necrosis of the bones around the nose and face. But these conditions are not so common as those coming from diseased teeth. In the seven cases I had in my clinic today everyone of them had disease of the antrum from disease of the teeth.

Dr. Davis asked a question with reference to leontiasis, and what I say in reference to it will answer the questions that have been asked by others. It is a disease of the bone, the pathology of which is not well understood. Like elephantiasis, it is impossible in the literature of the subject to get a very clear idea of what it really is. The only thing that we do know is that the tissues take on a new growth, which is enormous as in cases of elephantiasis. The tissues take on gigantic proportions, and on account of the roughness and irregularity, the skin resembles that of the elephant. Leontiasis involves the bone and the cortical or outer layer of the bone becomes extremely thick. It is very, very hard, sometimes seeming to be more than twice as dense as the ordinary cortical bony tisue, and so when we do get into the cancellated bone we find it is different in its general structure. Instead of there being the well formed, cancellated bony tissue, it is somewhat softened. It cuts out very much like very hard cheese, like the rind of the cheese, and as soon as we get through it and get into the normal bone we recognize it shows a change in the general anatomical structure of the bone. I have told you that the diseased tissue is harder, and when examined microscopically the cancellated tissue is more compact and the lacunae and canaliculi seem to be contracted and massed in little areas here and there. It does not cause pain usually, though in some instances where the tissues are stretched pain is due more to tension on the nerves that supply the parts than any condition within the bone itself.

Dr. Reid:

I would like to ask Dr. Brophy if this condition of the bone is likely to appear anywhere else in the body?

Dr. Brophy:

The jaws are much more likely to be affected by it. In its inception it is hard to make a distinction between it and ordinary exostosis of bone.

Dr. Reid:

How long has this been developing in this case?

Dr. Brophy:

About five years. In the last six or eight months the growth was very rapid. It is a disease which has been classified among those that are incurable, although from my own experience I can not say.

I have another case of a boy upon whom I operated seven years ago, who is still living. There is no recurrence and no tendency towards recurrence of the disease. I shall watch the case of this girl with a great deal of interest.

Before leaving this phase of the subject I want to say in this girl's case the tissue is healing.

Dr. Reid has asked as to the cause of this condition. It is not well understood, but it is supposed to be due to some injury that starts an inflammatory process, and then the tissue cells begin to multiply. In the case of the girl before us the disease originated first from an inflammation set up by diseased teeth. In the case of the boy the origin of the trouble was also an inflammation set up by disease of the teeth.

Dr. Reid:

Were the molars extracted prior to your operation?

Dr. Brophy:

Yes. I did not extract any of the teeth. These and similar cases impress upon us the importance of keeping the teeth in as good a state of preservation as possible. One does not see many of these cases during a large practice as compared with a number of other cases that he observes, but these cases nevertheless show the inestimable value of oral hygiene and the preservation of the human teeth, not only for the purpose of preserving the teeth themselves, but for preventing many forms of grave diseases that come as the result of dental lesions.

As to the prognosis, we cannot tell exactly what the outcome will be. We can only hope that these patients will go on without recurrence of the disease. My observations lead me to believe that the prognosis is favorable in certain cases.

Dr. Reid speaks about my writing a book. It may not be known to you that just prior to my severe sickness, about twenty years ago last fall, when I went to California, I had a book which was well towards completion. I think I had about two hundred pages of it written. When I came back to Chicago the thought of that book was so distasteful to me that I wished I had not written it when I was ill, and I have never had the courage to undertake the finishing of it, and as time has gone on I find that the book would now be so far behind the times that it would be of little value.

Dr. Carpenter asked whether I went below the muscular tissue. The bone was entirely denuded so that there was nothing but the line of incision, which was made almost up to the border of the gum tissue. All of this was turned back until I could expose the bone throughout the entire length and around to the molar tooth on the opposite side, and the lip and all was reflected beneath the chin and the bone exposed to view, I removed the part that was diseased. That procedure is new. I do not know of it having been done by anyone else. I would commend that as a most humane and most desirable method of procedure in such operations. The same may be done with reference to the upper jaw.

The remarks of Dr. Woolley impressed me very much. He asked a question that probably occurred to others, and that is why I do these things. Well, it is simply through study of what is possible to do. I find in operating from time to time I can do better. I can improve on what I am doing, and that leads me to do an operation a little differently the next time. I confess that every surgeon in operating is indulging more or less in experimental work. He starts out to do an operation in a certain way, and he does not know what will be required before he gets through. I have found by experience I could operate within the mouth and remove tumors, that is, small tumors, without making external incisions, and then it occurred to me that if I could do it in the case of small tumors, why could I not remove large ones in the same manner? And this I have been doing, taking small tissues within the mouth into the field and operating on all of them. I made an operation today beneath the tongue. It was simple, but I am satisfied that many general surgeons would have made an external facial incision to accomplish the same end.

Dr. Woolley also speaks of the value of the X-ray. On previous occasions in this society I have spoken in a most emphatic way in my papers of the value of the X-ray. Dr. Johnson also spoke of the X-ray and its benefits. This patient, whose plate has been exhibited to you, has been, for years suffering intense pain in her face, due to the presence of lead from a gun-shot in her jaws, or behind her jaws, probably in the sphenoidal fissure in contact with the posterior dental nerve. She has been examined by some of the most reputable neurologists and surgeons in this city. She has been treated by internal medication, and not one of them ever succeeded in locating this bullet. I had this plate made by Dr. Lewis and brought to me showing its location.

Dr. Johnson spoke of the subject of neuralgia. It is too large to dwell upon here at length, because it would occupy a whole evening. I want to say in this connection, however, that I have patients who have had injections made of osmic acid and deep injections of alcohol, who have never had an X-ray made and for whom I have discovered the presence of teeth in contact with nerves. I have discovered sections of exostosis with pressure upon the nerves, and I have in operating on some of these patients found that the nerves were constricted in the growth within the bony canals, not more than one-quarter of the size of the nerve outside and the movements of the face and the movements of the muscles would bring on the most severe paroxysms of pain. I have used deep injections of alcohol myself, but what is the use of making use of anything like that, when with the light of our present knowledge which is acquired by the X-ray, by the skiagraph, we can use an agent that demonstrates the cause of the trouble? By means of the X-ray we can see the disturbing elements. It is like giving a man a dose of medicine when he has a sliver in his finger. The principal thing is to take the sliver out and disregard the medicine. The question of the treatment of neuralgia is one of common sense. If there is a disturbing element, if there is an exciting cause of pain within the tissues that can be located by the X-ray then it is our plain duty to remove the disturbing element or exciting cause, and when that is done the patient will get well. The making use of deep injections of alcohol, the making use of injections of osmic acid for the cure of a patient without knowing what is the matter with him seems to me to be acting with poor judgment. It is just plain common sense to find out what is the matter with a patient before you treat him.

Dr. Ames asked me a question with reference to leontiasis, but I think I have answered it in reply to some of the other questions that have been asked.

Dr. Kester has been kind enough to ask me to do something to educate medical and dental students along these lines. I have generally told everybody what I have thought on the subject with reference to the importance of avoiding scarring patients by operation that can be performed without making external incisions. He has also referred to the work I have done in regard to cleft-palate. In this connection it may be of interest to you to know that to-morrow I am going to have a group picture of fourteen infants who have been operated on by me for cleft-palate. I do not know of another such group in the world. These patients came from all quarters of the country.

I want to thank you again for your very kind consideration of what I have attempted to do this evening.

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EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

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EDITORIAL.

AN AGREEMENT BETWEEN DR. W. H. TAGGART AND THE DENTAL PROTECTIVE ASSOCIATION.

The following circular letter, which has recently been mailed to members of the Dental Protective Association, is self-explanatory, and we commend it to the careful reading of every member of the profession who is using the Taggart method:

To the Members of the Dental Profession:

The Dental Protective Association of the United States was organized by Dr. J. N. Crouse, of Chicago, in 1887, when it was quite common for patent claimants to collect unjust and exorbitant royalties from the members of the dental profession. Since this Association was organized it has succeeded in preventing patent claimants from abusing the profession, and its strength and influence is recognized by all who are familiar with its history.

About four years ago Dr. W. H. Taggart, of Chicago, described by means of papers and clinics a new and original method of making inlay fillings. Briefly stated, the method consists of making the inlay in wax and reproducing the wax inlay in gold or other metal by a casting process. Since the introduction of the so-called Taggart method, the practice of dentistry has been in a large measure revolutionized.

Dr. Taggart is now the owner of certain United States letters patent and applications for United States letters patent relating to the method and apparatus for casting inlay fillings according to this method; and he has brought suit against at least one member of the profession and has threatened the members of the Association with litigation based upon the alleged infringement of said letters patent.

The question arose as to what action the Association would take in case any of its members was sued for alleged infringement. To engage in a long series of litigation is as unsatisfactory as it is unprofitable for all concerned. Let it be understood that the Dental Protective Association was organized to *prevent abuse* of its members, not to defraud any man of his just due. Dr. Taggart had offered to sell his machine for casting, including the permission to use the method, for $110.00, or the permission to use the method alone for $50.00. Was this an abuse of the dental profession? Many dentists, including Association members, felt that it was not and at once purchased Taggart's machine; others felt that Dr. Taggart was asking too much, since the process could be carried out successfully with a less complicated and therefore much cheaper machine.

Every dentist realized the value to him individually of the Taggart method, and it can be said that most practitioners felt that they were in some way indebted to Dr. Taggart. How much in money value they were indebted and how the debt could be liquidated were points which did not seem to be clear in their own minds. Therefore the Board of Directors of the Association was urged to take the matter up with Dr. Taggart and see if amicable terms could not be made by which its members, present and prospective, could practice the method with the machine they were now using without danger of litigation. The Board took the matter under consideration and caused an investigation to be made respecting the validity of the letters patent, and after being convinced that the same would probably be sustained in whole or in part if litigated, concluded that if a compromise agreement could be effected between the Association and Dr. Taggart a threefold object would be accomplished.

First. The members of the Association, both present and prospective, would be protected, without litigation, in case Taggart succeeded in validating his patents.

Second. It would afford an opportunity of banding the profession together into a strong and permanent protective association.

Third. It would give to Dr. Taggart, without litigation and without a hardship on any dentist, a just and reasonable compensation for his valuable invention.

It is with a great deal of satisfaction, therefore, that we are able at this time to announce to the members of the Association and to the profession at large that an agreement in writing was entered into between the Board of Directors and Dr. Taggart, and the same was duly signed and delivered on the 5th day of December, 1910.

The terms of the agreement are such that any member of the Association in good standing can secure the present Taggart machine for the cash sum of seventy-five ($75.00) dollars, including the permission to use the method, or he can obtain the permission to practice the Taggart method alone for the life of the patents (17 years) with any machine he may now be using for the cash sum of fifteen ($15.00) dollars, provided the amount is paid before the entry of any decree or judgment finding Taggart's patents valid or granting damages for infringement.

The agreement further provides that any member of the profession who joins the Association within the time above specified can also secure such permission on the same terms.

The fee for membership in the Association is ten ($10.00) dollars. It will be seen then that for $25.00 any member of the profession can obtain membership in the Association and the permission to use the Taggart method. The Board of Directors feel that this is a just and fair proposition for all concerned, and they earnestly hope that the members of the Association, both present and prospective, will realize and appreciate the delicate situation with which we were confronted and accept at once the terms of the agreement. We ask you to carefully read the accompanying By-Laws, and trust you will immediately sign and return the same, together with your check, to the President, Dr. J. N. Crouse, 2231 Prairie avenue, Chicago.

(Signed) J. N. Crouse,
C. N. Johnson,
J. P. Buckley,
Board of Directors.

From the foregoing circular it will be seen that anyone practicing the Taggart method may now protect himself from any possibility of future litigation by the payment of a ridiculously small sum relatively to the value of the process to himself and his patients. If he is already a member of the Protective Association he can secure permission to practice the method for $15.00 for the life of the patent—less than one dollar per year. If he is not now a member he may become one by paying $10.00, and he thereby not only secures the advantage of the agreement with Dr. Taggart, but he is protected from abuse on any worthless or invalid patents which may be taken out in the future to harass the profession. Provision is made in the agreement between the Association and Dr. Taggart whereby the men entering the profession in the future may secure the same protection granted to the present membership at a progressively reduced rate, in accordance with the number of years the patent has run at the time of their graduation.

From the time Dr. Taggart announced his invention to the profession the general consensus of opinion among the majority of dentists has been that he was entitled to some compensation. Now the opportunity is open to all of those who are practicing the process to do something for Dr. Taggart without any appreciable burden to themselves. It seems to be the solution of a situation which had grown to be so tense that there was grave danger of a permanent estrangement between the profession and the man who had given it one of its greatest blessings. In this connection it may be no breach of confidence to state that Dr. Taggart is working incessantly on improvements in the details of his casting method, and now that his mind is to be relieved from the worry and strain of prolonged litigation with the profession, he may be expected to develop his process to a degree of perfection not yet realized. This will redound to the benefit of the profession and make the practice of dentistry less irksome, and more effective for the saving of the teeth of humanity.

THE RETIREMENT OF MR. C. L. BINGHAM.

One of the most highly esteemed of all the dental supply men of the middle west has been Mr. C. L. Bingham, manager of the Chicago branch of the S. S. White Dental Manufacturing Company, and it is with sincere regret on the one hand and hearty congratulation on the other that we record the fact of his retirement from active business. We regret that the supply interests are to lose so valuable a man, and particularly that Chicago should sustain this loss, but we congratulate Mr. Bingham on being able, while yet in the vigor of his manhood, to lay aside his heavy burdens and cultivate those higher tastes with which his nature is so richly endowed.

The name of Bingham is most intimately associated with the dental supply business of Chicago from the very first. It was Mr. S. R. Bingham, of blessed memory, who started the earliest dental supply house in Chicago in 1858—a branch of the S. S. White Company—and he continued as manager till his death, when he was succeeded by his most worthy son, Mr. C. L. Bingham. Thus these two men have had continued charge of this branch for more than half a century, and the record they have made as father and son has done much to lend dignity and strength to the supply interests of this section.

In retiring Mr. Bingham holds in a commanding way the respect and good will not only of his immediate associates in the company with which he has been so closely identified for more than forty years, but of supply men everywhere, and the dental profession generally. It gives us pleasure to pay this tribute to a man whose high ethical standard has given distinction to his calling and has endeared him personally to all who know him.

THE EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 4.)

My Dear Boy:

If I had not been too much occupied in my previous letters in giving you other kinds of advice I should have told you at the beginning of your college course of a grave danger. I trust that it may not be too late now. You have come from a small town to a big city, and this is the first time you have been really away from home. You have had the restraining influences of the family circle to guide you in your every-day life, and you know better than I can tell you how solicitously that good mother of yours has watched over you. But now everything is changed. The only restraining influence you have at present is your own force of character, and it depends upon you whether you go right or wrong. The city is no worse than a town or village unless you make it so, and in some respects it is much better. There are more opportunities for legitimate diversion such as lectures, good theaters, Y. M. C. A. privileges of the highest order, churches where the best preachers in the world hold forth, and a good, active college life full of interest for you every moment of the time if you see fit to identify yourself with it. You may have as your associates some of the very best boys that ever were born. I know because I have worked among dental boys for many years, and while I am not claiming that there are no black sheep in every class, yet I am firm in my faith that the rank and file of the student body are good, hearty, earnest fellows who are well worth cultivating. Select your intimate friends among the better element of the class, and be careful—be very careful—at first not to get mixed up with boys whose tendencies are not in the right direction. While in the college building do not hold yourself aloof from any single member of the class, so far as social status is concerned. Remember that you are all on an equal footing, with equal opportunities and equal treatment. If individualities develop in a class as the session goes on, and one boy gets along better than another and becomes more of a favorite among the boys and with the teachers, it is because of something within the boy himself, and not from any outside influence. The boys are placed on a dead level to begin with, and there is no preferment; so while in the college one boy is as good as another as far as status is concerned. But outside the college doors, where the opportunity for real mischief occurs, you must exercise great care in your choice of companions. Select for your chum, if you can, a boy who is a little bit better than you are—oh, yes, there are, too—there are several boys in that class better than you. Get down off your high horse, my lad, or you will be taken down. Come, now, no self-conceit—the boys will soon attend to your case if you show any of that.

Hive with the boys who are clean and honest and in earnest about their work—with some legitimate fun mixed up in their composition. *Do not take that first wrong step!* It is so much easier to keep out of mischief than it is to get out of it. You will have temptations, as surely as you are going to amount to anything in the world you will have temptations, and just as surely—if you are to amount to anything—you must overcome them. Every time you climb over a temptation and put it under your feet you are a stronger, and better, and happier boy, and it all comes easily after a while. Remember your mother, or your sister, or your sweetheart, or some other good woman who is interested in you, and every time some alluring and almost irresistible temptation stares you in the face just think of her and imagine what she would want you to do under such circumstances. It is a wonderful help to a young fellow to do right if he keeps the vision of a pure woman ever before him as his guiding star.

But if perchance you have made a mistake and stumbled and fallen before this letter reaches you, do not get discouraged. Pick yourself up, with a firmer resolve than ever to go right. You will win if you hang on. If you get too discouraged pick out a chum to confide in, and if you cannot find one among the boys to whom you would care to open your heart, then go to some member of the faculty and tell him your troubles. He will listen to them with a keener interest than you can imagine, and he can probably show you a way out of the difficulty. He has had a longer experience than you and he has helped many other boys before you. If he cannot do anything else for you he can at least show you that the only one to solve the problem is yourself. It is often a good thing for a young man to be made to realize that the one responsible individual in the case is himself.

If you could only know how very surely you are now molding your entire future career I am certain that you would guard every action most carefully. Your college days constitute the formation period of your life, and it is the most critical period. Habit is exceedingly tenacious with most of us, and the habits you are now forming are all-powerful for either good or evil. In this connection I want to impress one fundamental fact upon you, and I do not want you to dismiss this fact with the mere reading of it. I want you to sit down beside it and study it, and absorb it, and keep on studying it and living by it during your whole college course. It is this: A good habit is as hard to break as a bad habit. That is the sublimest truth that was ever written for the encouragement of man, and it is fundamentally and literally a fact. If you can let that sink into your inner consciousness and keep it there you will never go very far astray, because, no matter how dull you are in intellect, you cannot help realizing the significance of doing wrong or doing right during your college course when you know that every act you perform tends to mold a habit which may make or mar your entire future life.

Now, my dear boy, do not dismiss this idea from your mind with a thoughtless toss of the head and your thumbs in the armholes of your vest. I hate to preach to boys, I hate it almost more than boys hate to be preached to—which I imagine is saying much. I would rather set a million years of example before a boy if it were in my power than to give him a minute of admonition; and yet you are just beginning, you are so young in professional and college experience that the factor of example has not yet had a chance to mold you, and I am so intensely interested in you that I must speak. And I speak not in any pharisaical or puritanical sense. This is not a letter of negation, but one I hope of stimulation and inspiration to the higher and better things of life which may come to you now so freely and fully when you are just at the stage where all you have to do is to reach out resolutely for those things and clasp them to you with bands better than steel—bands of habit, more tenacious and more potent than anything made of material form, and more lasting than the solid rocks of earth.

I need not specify the things you should do and should not do in the formation of habits in college. You know them as perfectly as I could point them out to you, and yet it may be well for me to suggest a very few of the special dangers of city life to a young man coming here for the first time. First are the attractive, beautifully decorated and well lighted saloons. Some of them are exquisite, almost bewilderingly so, in their fittings, and if the churches were made half as inviting and cozy they would catch more young men than they do. Then there are the public dance houses and the glittering halls of vice—always with music and saloon accompaniment, and always warm and comfortable in winter. Then the cheap theaters—so-called—with questionable plays and tough audiences; all of these go to make the way down hill very easy for a young man to travel.

And yet, as I have intimated, there is no more occasion for a young man to go astray in a city than in a town. He may live month in and month out in a city and never encounter any of the things I have mentioned. If he does encounter them it is merely because he goes out to look for them, and this is the one last word I have to say to you on this subject—do not go out to look for this kind of diversion. Believe me, it is not, after all, diversion. It is perversion, pure and simple—perversion of body and of mind. Let me take you by the hand, let me even place my arm about you, and beg of you to remain away from the places where ingenuity has set so many traps to catch you.

Faithfully yours,

THE PRECEPTOR.

CORRESPONDENCE.

DUTIES OF A DENTIST'S WIFE.

Editor of Dental Review:

Dear Sir:—In regard to the responsibility of the dentist to the public, kindly let me say that the dentist's wife shares, at least to some extent, that responsibility.

Under the present difficulties of raising a family, the teeth require care which seems to call for the daily attention of mothers.

If a dentist's own children are being well attended to in such matters as brushing the teeth, mastication and proper breathing, he is in a better position to give advice and instruction.

Afternoon teas, receptions, bridge parties, etc., are apt to detract a mother's attention and make her likely to forget the importance of such matters.

After the examination of school children it would be interesting to know how many physicians' and dentists' children are in sound health.

Experience has shown that children which were given a small toothbrush at the age of two years not only became interested in brushing their teeth, but by the time the permanent teeth appeared they could do some expert brushing and also call each tooth by its proper name. The object in starting them so early was to form the habit of brushing and have them become familiar with both brush and teeth.

A few living examples in the families of dentists will do a great deal towards forming public opinion of the value of a dentist's services.

A Dentist's Wife.

ORAL HYGIENE COMMITTEE.

Dr. C. N. Johnson, Cleveland, Ohio, Dec. 14, 1910.
Editor Dental Review, Chicago, Ill.

My Dear Doctor:—Received the following telegram last Wednesday, which speaks for itself:

"Dr. W. G. Ebersole, "Albany, N. Y., Dec. 7, 1910.
Southern Hotel,
Columbus, Ohio.

Dr. H. L. Wheeler of New York City and Dr. W. A. White of Phelps were today appointed by me as lecturers on Oral Hygiene for the State Department of Health.

(Signed) EUGENE H. PORTER,
Commissioner of Health."

This is the first recognition of this kind that has been given to dentistry in this country, and is the direct outcome of the Annual Conference of Health Officers of New York State, which was held at Buffalo November 16th, at which time the writer addressed the Conference upon the subject of "Public Health and the Dental Profession," which was discussed by Dr. W. A. White of Phelps, N. Y., and Dr. W. W. Belcher of Rochester.

These appointments are the indirect result of the opening of the Oral Hygiene Campaign of the National Dental Association, which was held in Cleveland on March 18th last.

Dr. W. A. White is a member of the Oral Hygiene Committee of the National Dental Association, and it is due to his activities in this direction more than to any other man that we were able to bring about these appointments. Dr. Wheeler is a member of the International Committee, and has been very active for years in New York City in the Oral Hygiene field.

The acceptance of these appointments as lecturers and consultants by these men means that they do so at considerable sacrifice, for it is not at all probable that the State will pay them for their services an amount which they could equal by confining their time to their practice.

The above telegram from Commissioner Porter was received just one year from the day the Ohio State Dental Society appropriated $500.00 for the spreading of the Oral Hygiene propaganda. The effect produced by the reading of the telegram was such that immediately following the same Ohio voted to give its committee another $500.00, and voted $100.00 to the support of the National Education and Information Bureau. This is the first contribution made by a dental organization to the support of the Oral Hygiene Campaign of the National Dental Association.

It is the desire of the writer that the dental journals of this country announce the above appointments, and that they laud the broadness and up-to-dateness of Commissioner Portér in making these appointments.

Deputy Commissioner Wm. A. Howe, who is a fellow townsman of Dr. W. A. White, deserves honorable mention in this connection because it was through Dr. Howe that Dr. White was able to direct the attention of the health officers of New York State to this important question.

I trust that this reaches you early enough for the January issue of your journal. Sincerely yours,

W. G. Ebersole.

NEW YORK LETTER.

New York, Dec. 10, 1910.

My Dear Mr. Editor:

At four o'clock of Tuesday afternoon last, December 6th, Dr. Geo. C. Ainsworth, of Boston, Mass., gave a clinic before members of the Institute of Stomatology on contour gold fillings which was enjoyable from many viewpoints.

Dr. Ainsworth belongs to the fast passing school of soft gold workers, and his clinic reminded those who could remember the occasions of twenty-five years ago, when "big men" used to glory in putting in gold fillings before their confreres. I remember being alive in that past age, craning my neck, straining eyes to see—if only a little—for their were crowds of older fellows in front—and ears to catch some phase of the rapid fire conversation going on, that I might apply a few principles to relieving the infirmities of those confiding souls who were willing to let me have a try at them, although they did not appreciate the chances they were taking. However, many a wrinkle was picked up at those clinics and applied in practice, and I know I am repeating some of the tricks still, daily.

Last Tuesday I was watching again, but I now know how those older fellows down front felt in the clinics of that past age, for I have also learned their trick of elbowing my way further forward—waiting my chance to edge in. Dr. Ainsworth showed at this meeting how to apply a simple steel, hand-made contour matrix without separating the teeth, and how easy it was to carry large, soft cylinders to place and condense them with large, finely serrated pluggers slightly overcontouring, while the filling progressed by forcing the gold in the direction of the matrix. When the cavity was three-quarters filled, gold ribbon was used to fill in the recesses and undercuts near the periphery, and lastly well annealed No. 40 ropes of gold were used to complete the contour. When the matrix was removed very little burnishing was needed to complete the filling.

At the regular meeting of the society which followed that same evening he explained in detail the principles of matrix using—a number of types and the simple type in conjunction with the Perry separator. He said, too, that it was rare that he separated teeth previous to the sitting for filling—or, rather, it was rarely that he did so at all. He depended upon the steel ribbon entirely, the thickness of which is one-thousandth of an inch.

The discussion which followed the reading of this paper brought out only one point of interest, and that was by Dr. Dunning, who referred to Dr. J. F. P. Hodson's hand-made matrices. We of the East are quite familiar with them. They are made, for each case, of thin steel, contoured to follow the lines of the lost tooth structure by shaping the metal with a small round-head riveting hammer or punches on a lead block. I know that they can be so beautifully shaped and sprung into place, the operation completed, the matrix removed and so little finishing required that the time spent in shaping the matrix is well spent. Where these matrices are used to make amalgam restorations they should be left in place for many hours, until the amalgam thoroughly hardens.

The Institute devoted that evening to several short papers. Following the preceding paper was the description of an "Interesting Case in Practice," by Dr. T. W. Onderdonk, of New York. A patient has been under his care who until recently has been more than usually physically strong. About a year ago he presented with dental trouble—all evidences of a devitalizing pulp, but upon boring into the tooth it was found vital. Pressure anesthesia was resorted to, the pulp removed, the conditions became relieved. Soon after another tooth acted similarly. For reasons the same procedure could not be followed: arsenic fibre was used instead. In due time the pulp canals were treated and filled as before, the relief being complete. Other teeth in the mouth are acting in a similar way.

Dr. Carl Smith cited a case from his practice which acted similarly where upon extraction of the teeth the roots were found absorbed. The patient died soon after of diabetes.

Dr. C. W. Ferris of Brooklyn believed that the history of such cases would show that they bolted food and were addicted to the excessive use of salt.

In the reading of the paper Dr. Onderdonk did not indicate what he thought the cause of trouble to be, but in closing the discussion he said his diagnosis was constitutional disturbance—"similar to gangrene, or poor circulation."

Another little paper was presented, the like of which is always interesting. It was the maiden effort of Dr. Geo. A. Wilson, Jr., to contribute to the profession's advance by preparing for the society an essay on "Little Time Savers; Practical Helps in Our Daily Work." He had collected so many of them and read them off so fast that it was difficult to keep track of them. Dr. Wilson senior was also on the platform at the same time. He is the Institute's secretary. The young man acquitted himself finely and received hearty congratulations and thanks from the president, Dr. S. E. Davenport, and after adjournment both father and son shared jointly in the honors tendered them by individual members.

At the last meeting of the Institute of Dental Technique held at the Phi Gamma Delta Club, 33 West Forty-fourth street, Dr. Maurice Green read a paper on the use of ethyl-chlorid as a general anesthetic, and described its use—the spraying of it into the collapsible rubber bag. By his method of administration the patient is allowed to inhale from the bag and exhale into and re-inhale into the bag again, taking in each time carbondioxid, which he believes has no disadvantage. There was some disagreement on this point, though. Dr. Green acknowledged that there were cases where headache followed the administration, which to the minds of some seemed only a natural sequence if the patient were not permitted to exhale the carbonic acid gas through a face piece provided with an outlet valve for that purpose.

The essayist said also that some nausea at times followed the use of this anesthetic, but that he believed to be due to swallowed blood. He has records of eighteen thousand cases where chlorid of ethyl has been used with not a fatality. He considers all subjects good, but some are better. Children are the better; alcoholics bad. The scope of the drug is unlimited.

Dr. Hasbroeck, one of our extraction specialists, in discussion said that he had the idea that the mortality of ethyl-chlorid ranged somewhere near chloroform, or one in two thousand.

Dr. Ware, a physician, said that in the use of anesthetics it was the border line where both professions meet. He made the statement that he knows of one hundred thousand cases of the use of chlorid of ethyl with no fatalities. The whole thing centers on that error of McCarthy of England, who made it a point to enumerate all classes and conditions of fatalities, where to ascribe the fatalities to the anesthetic was absurd.

The real question is—an anesthetic that will do the greatest good to the greatest number.

Dr. M. I. Schamberg said that he felt it his duty to say that chlorid of ethyl was deserving of greater recognition than we have been giving it.

Nitrous oxid and chlorid of ethyl do away with cyanosis, but, after all, a man must use judgment with any anesthetic. Some people become nauseated from sea voyage. That they become so from the use of an anesthetic is no reason for condemning a drug.

Dr. Helman said that anesthesia was his chief work. He, too, felt that the selection of the anesthetic depended upon the case. All anesthetists, when they have this privilege, have little trouble. Deaths are often due to lack of choice. Economy and portability make ethyl-chlorid very desirable. The pulse should be the real guide in any anesthetic. He characterized ethyl-chlorid as easily as safe as nitrous-oxid and advised what is known as the open method—admitting as much air as possible.

Dr. Harold Vaughan gave as statistics the fatalities of

Nitrous-oxid as	1 in 100,000
Ethyl-chlorid	1 in 12,000
Ether	1 in 10,000
Chloroform	1 in 1,000

As to the use of somnoform, he believes that the man who uses it would have no ground to stand on in a court of law after the recent disclosure of its composition and the action of the government toward its manufacturers.

At the last meeting of the Second District Dental Society, held in Brooklyn on November 14th at the Kings County Medical Society Building, Dr. Clarence J. Grieves, professor of comparative anatomy and dental histology in the Baltimore College of Dental Surgery, read a paper entitled "Systematic Pus Poisoning Associated with Diseased Apical Regions," where in he showed quite conclusively by the history of cases that have come under his observation and by the report of three years' work in line with the modern movement in medicine towards the obliteration of all possible pus foci, that systematic disturbance may be prevented. He brought out the fact that there often occurs about the apices of teeth certain minute areas of infection, unsuspected by the patient, and containing pus until resorbed, producing a series of symptoms simulating incipient tuberculosis, and often the cause of arthritic states. In diagnosis Dr. Grieves was quite sure that these areas were always overlooked by the physician and frequently by the dentist, as such conditions are only demonstrable by good skiagraphs. Whatever the treatment, his finding is that it generally ends in tooth extraction.

The doctor cited cases of osteomyelitis, infectious arthritis, and some tubercular cases, which cleared up, some very soon, others as long as six months after removal of the dental pus foci.

The relation of such obscure conditions to pyorrhea alveolaris was not brought out as clearly as it was expected the presentation of such a paper might, except the conclusions of the author, which seemed to be that—"whatever the treatment, it generally ended in tooth extraction." The discussion took a general turn, but it was not in accord with this expression of the essayist—and could not endorse the extraction of teeth indiscriminately. It did seem to me that Dr. Grieves' conclusions were much at fault, as in no case reported had an attempt been made to destroy the pyogenic area by treatment other than by extraction. Yours truly,

"THE BOROUGHS."

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Protecting Gum While Grinding Root:—When I am grinding an anterior root for a Logan crown, after I reach the gum line I take on orangewood stick and trim it at one end into a flat edge and push the gum away from the root with this stick, so I am able to grind the root a little below the gum without lacerating and mutilating the gum.—*M. H. Diratsouyan, Oklahoma City, Okla.*

Cause of Flexible Ridge:—The cause of the flexible ridge of the anterior margin of the upper jaw, so very common under metal as well as rubber, is due to pressure of the lower anterior teeth. They should never meet under any conditions in order to avoid not only this unfortunate condition, but so often the displacement of the upper denture.—*L. P. Haskell, Chicago.*

Drying a Case Before Casting:—Placing invested wax model for inlay or plate on steam radiator until moisture is driven off, then transfering directly to Bunsen flame for 15 or 20 minutes, burns out wax without bubbling and leaves smooth walls to mold, without destroying integrity of investment, so often found when it is subjected to prolonged application of a high degree of heat.—*P. G. Puterbaugh, Chicago.*

Cleaning Cement Slab:—The finest way I know of cleaning cement slabs is by washing same with a piece of ordinary scourine soap, such as sapolio and the many others on the market. Simply moisten the slab and the soap and rub and immediately all the cement particles, whether hard or soft, will become loosened and when the slab is wiped it is thoroughly clean—*Fred R. Felcher, D. D. S., Chicago, Ill.*

A Ready Agent to Meet the Condition:—I have on hand a box containing a gross of small homeopathic vials, also a bottle of Camphophenique to meet cases of irritation which may occur after the extraction of bad roots, or the filling of a root canal. This may be applied over any irritated area with gratifying results to the patient. Give the patient a small vial full to apply over affected area at home, as the case demands it, until the condition subsides. I have found Camphophenique an excellent remedy for these classes of cases.—*W. G. Mitchell, Chicago, Ill.*

Taking an Impression of End of Root:—To take an impression of the end of a root for the purpose of adapting a floor for a cast base detachable crown, take a copper ring a little larger than the circumference of the root and hold it in place around the root. It will slip up between the gum and side of the root. Then holding it there, pack modeling compound in the ring and down against the end of the root. By having your assistant keep a stream of warm water from the water syringe flowing on the compound, you can with a broad-ended amalgam instrument pack the compound against and around the circumference of the root end and get a perfect impression.—*A. F. Kenney, Chicago.*

A Method of Constructing a Temporary Crown:—In making a porcelain crown it often happens that a second sitting is desirable to complete the operation. This would necessitate the patient leaving the office with a tooth missing, and in case it happened to be one of the six anterior teeth it might occasion considerable embarrassment. The writer has found it exceedingly satisfactory in these cases in selecting a suitable bridge tooth, and grinding it on the lathe to approximate the artistic demands, trying it in a time or two, and then taking a piece of German silver wire, about 13 or 14 gauge, of suitable length and soldering it to the pins of the facing with tinner's solder, using as flux a drop of chloride of zinc. If one has any scruples against using a solder of tin and lead, tin alone can be used. It is then tried in the mouth, and if the alignment is not correct adjust with pliers until the tooth assumes the desired position.

The post is now dried and warmed over a flame and enveloped with softened gutta percha. It is then pressed to place upon root and excess removed. It may now be withdrawn and a thin mix of quick setting cement placed on the gutta percha and carried to place upon root. This sort of a crown will, with moderate care, do excellent cosmetic service for a day or two, and it need not require more than fifteen minutes to construct it. The gratification to the patient will often make the additional pains a pleasure to the operator.—*E. Ballard Lodge, Cleveland, Ohio.*

Some Hints on the Gold Inlays:—In the first place, in driving the wax home I hold it lingually-bucally a few minutes to keep it tight in the space, thereby forcing it lower down cervically, to get a good excess there; then the occlusion, of course, by biting and grinding on the wax. Then the excess is cut away lingually-bucally, and smoothed over with smooth spatulas or burnishers, whichever you prefer, and then I take a thin steel polishing strip and slide down through proximally, and cut out not all but part of the excess. Then you can take a very thin twilled silk tape, so thin that it will follow down the little space in which you put your polishing strip. That should be wide enough to cover the proximo-occlusal corner or angle, and in doing so comes up over. That should be lubricated, according to Dr. Taggart's last discovery, with *vegetable* oil. The inlay is drawn down and polished, then a sprue inserted near the proximo-occlusal angle, and chilled thoroughly. With a pair of light pliers, grasping the sprue easily, the wax can be taken out of the cavity. I gain two or three advantages by doing it in this way. After the inlay is cast the sprue is cut off half way between the button and attachment of the inlay, and the spud is left there so that you can handle the inlay with your pliers. I think a great many accidents, especially in early work, have been caused from the lack of use of magnifying glasses, with which you see some of the minute peculiarities. After you have driven the inlay to place you can polish over the different margins and angles, and then take the inlay to the laboratory in a pair of flat-nosed pliers and put it on a buffing wheel. You do not have to touch the inlay after that.

There is one point I neglected to mention, and that is that after you have cut down and separated by the steel strip and polished with the oiled tape, afterwards you must replace some of the wax. If you want to fill out any contact point that has worn off, you can add that much extra.—*E. R. Carpenter, Chicago, Ill.*

The Sprue:—The sprues furnished with some machines seem coarse and fit only for heavy pieces, for gold in its transfer from the crucible to mold needs a passage somewhat in proportion to the size of the case, therefore an assortment of sprues to correspond somewhat with the various sized pieces of work would be desirable and increase exactness. The larger and shorter the sprue the less heat and pressure will be required to cast sharp, and because of the inefficiency of our investment materials the less of both the better will be the result.

Long, slender sprues remove the mold too far, giving the metal time to chill in transit; the nearer the mold can be to the crucible without endangering caving in the top of the investment the less force will be required to transfer the gold from one to the other. Yet the escape of air from the mold is equally necessary, and is best facilitated by having the mold as near the bottom as is safe against bulging, for as the air must escape through the porosity of the investment, the shorter the distance the easier will it release. So casting rings of varying lengths are necessary in order that the mold outlines may be equally distant from both top and bottom, though the same result may be easily gained by the use of an instrument resembling the casting ring base to press into the bottom of the ring while investing, hollowing it somewhat like the crucible on the opposite end, thus holding the impression central.

It is found good practice whenever possible and practical to imbed the sprue in the impression before removing it, as it makes a convenient attachment and tends toward accuracy because of one less handling. A sprue with a fine hole drilled central from end to end that will admit of a small brass wire than can be removed and attached to the impression facilitates handling by attaching it while the wax is in place either in the cavity or elsewhere and returning the wire into its place in the sprue before investing. This makes a dainty way of handling small pieces.—*C. N. Thompson, Chicago.*

MEMORANDA.

ALUMNI ASSOCIATION OF MARQUETTE UNIVERSITY—DEPTARTMENT OF DENTISTRY.

The meeting of this Association has been changed to January 24 and 25, 1911.

ALUMNI CLINIC.

The annual clinic of the Alumni Association of the Chicago College of Dental Surgery will be held in the college building on Wednesday, January 18, 1911. Dr. J. P. Buckley will read a paper. All ethical practitioners are cordially invited to attend. H. C. Peisch, secretary.

THE ARIZONA DENTAL SOCIETY.

The second annual meeting of the Arizona Dental Society was held in Pheonix, Nov. 9, 10, 11. The election of officers resulted as follows: J. Harvey Blain, Prescott, president; W. P. Sims, Bisbee, vice-president; H. H. Wilson, Phoenix, secretary-treasurer; board of directors, John A. Lentz, Phoenix; Ralph J. Roper, Prescott; John P. Yemen, Yuma.. H. H. Wilson, secretary.

DEATH OF MRS. HEWETT.

We regret to announce the death, on December 9th, of Mrs. A. C. Hewett, wife of Dr. Hewett, so well known to readers of THE DENRAL

REVIEW. Mrs. Hewett was one of the most estimable women we have ever known, and the loss to Dr. Hewett is well-nigh irreparable. He has the sincerest sympathy of a wide circle of friends, and the memory of a beautiful wedded life.

IOWA STATE DENTAL SOCIETY.

The forty-ninth annual meeting of the Iowa State Dental Society will be held at Des Moines, May 2, 3, 4, 1911. This will be the largest and best meeting ever held by this society. A great effort is being made by this society to boost the membership to 1,000 for 1912, at which time we will have our fiftieth annual meeting and propose to celebrate accordingly. W. G. Crandall, secretary, Spencer, Iowa.

G. V. BLACK DENTAL CLUB.

The G. V. Black Dental Club of St. Paul, Minn., will hold a midwinter clinic in St. Paul on February 16, 17, 1911. A very interesting program is being arranged. Operations will be made and papers read by prominent members of the profession. Full program will be published later. The profession generally is invited to attend this meeting. Members of the profession having anything new to offer for our consideration are most cordially invited to be present and show same. Drs. G. V. Black and C. N. Johnson of Chicago will be in attendance and take part in this meeting. For further information address R. B. Wilson, secretary, American National Bank building, St. Paul, Minn.

NATIONAL DENTAL ASSOCIATION.

The following is a list of officers elected at the last meeting: Edward S. Gaylord, president, 63 Trumbull street, New Haven, Conn.; Charles S. Butler, vice-president, East, Buffalo, N. Y.; John W. David, vice-president, South, Corsicana, Texas; Eugene R. Warner, vice-president, West, Denver, Col.; Charles W. Rodgers, corresponding secretary, 165 Harvard street, Dor., Boston, Mass.; Homer C. Brown, recording secretary, 185 East State street, Columbus, Ohio; A. R. Melendy, treasurer, Deadrick building, Knoxville, Tenn. The fifteenth annual session will be held in Cleveland, Ohio, July 25 to 28, 1911.

COPY OF RESOLUTIONS PASSED BY THE NATIONAL DENTAL ASSOCIATION

Resolved, That it is the conviction of the National Dental Association that the metric system shall become the accepted standard of weights and measures in all professional and commercial transactions.

To accomplish this purpose at as early a date as may be practicable it is urged that all physicians, dentists, druggists and dealers in precious metals be urged to put into practice this system of weights and measures at once.

It is further resolved, that this resolution be published with the proceedings of the society and a copy sent to all the dental journals and to the secretary of the U. S. Pharmaceutical Convention, Dr Murray Galt Motter, 1841 Summit Place, Washington, D. C.

HARVARD ODONTOLOGICAL SOCIETY MEMORIAL TO DR. GEORGE FRANKLIN GRANT.

George Franklin Grant, D. M. D., was born in Oswego, N. Y., September 15th, 1846, of humble parents who in their early youth were slaves; his education was obtained in the public schools of his native city. At fifteen years of age he began the study of dentistry under the preceptorship of Dr. Albert Smith of Oswego, N Y. He removed to Boston in 1867, being at that time twenty-one years of age. In the following year he entered the Harvard Dental School, graduating with distinction in the class of 1870. Four years later he was appointed demonstrator of mechanical dentistry in the Harvard Dental School, filling that position for ten years. From 1884 to 1889 he was appointed instructor in the treatment of cleft palate and cognate diseases, and while occupying these positions he invented numerous devices for the correction and treatment of cleft palate. As demonstrator and instructor he served with skill and efficiency and was a most genial friend and helper to every student. In the practice of his profession he was eminently successful, numbering among his friends and patients many distinguished persons to whom his race and color was no barrier to friendship, but on the contrary, an unusual testimonial to his many excellencies of character, as well as to his eminent professional attainments. In the treatment of cleft palate Dr. Grant was a pioneer and an acknowledged authority, his exceptional technical abilities and faculty of imparting his knowledge to others attracted to him a host of admiring and appreciative students and practitioners. As a man and as a dentist, Dr. Grant's ideals were high, he was a true friend and keenly appreciative of real true friendship, he had a fine sensitive and generous nature, truthful, upright, optimistic, resourceful, all these qualities he possessed in a commendable degree. Dr. Grant was blessed with a good measure of material success, by virtue of which he was able to assist many an impecunious young man and woman in their struggles for an existence; to whom in reply to their oft repeated thanks he applied his favorite and simple admonition: "Now say nothing about it, do your work as well as you can and be kind, that will be the best reward you can offer me."

Dr. Grant was twice married, his family therefore brought him more than the ordinary measure of joy and sorrow. As a man he was gentle, patient, frugal and temperate, a most devoted husband and kind father.

Until within six months of his demise he was apparently in the enjoyment of excellent health and was daily at his post of duty. In March he suffered an attack of la grippe which later developed serious complications, hastening the immediate cause of his death, cancer of the liver. With cheerful resignation so characteristic of his optimistic temperament he uncomplainingly accepted the inevitable and with thankfulness for the many attentions and kindnesses bestowed upon him in his last days and hours, he passed out of a life of usefulness and devotion to duty, surrounded by his family and friends at his summer home at Chester, N. H., August 21st, 1910.

His funeral was solemnized from his late residence, 108 Charles, Boston, Rev. Dr. James DeNormandie of Roxbury officiating and paying a fitting and lasting tribute to his useful life and noble character. His remains lie at rest in Mount Pleasant cemetery, Arlington, Mass.

Dr. Grant was a credit to his race, to his alma mater and to his profession. In his death this society and our profession has lost an able, ethical and distinguished member, whose life and example has been a potent influence for good in our profession.

Be it resolved that this memorial be entered upon the records of this society and a copy forwarded to his bereaved family.

JULIUS G. W. WERNER,
WM. P. COOKE,
Committee.

CHARLES G. PIKE, Secretary.

THE

DENTAL REVIEW.

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THE GATEWAY TO HEALTH AND EFFICIENCY.*

BY MR. HORACE FLETCHER.

Ladies and gentlemen, and members of the Chicago-Odontographic Society: It gives me especial pleasure to have this opportunity to address you tonight in this magnificent auditorium, and upon the one subject which is of greater importance than any other before the world today, and that is, the conservation of the health and energy of the individual. It gives me great plasure, especially to tell you that it was in the city of Chicago thirteen years ago this coming June where I began the experiments which have led to the nutritional movement which without any consent of mine, has been called Fletcherism. I wish I had time to tell you the whole story concerning these interesting experiments in Chicago in June, 1898, and for several months following, but let me tell you why it is I have given up my life to the subject and have expended whatever money was necessary to secure a proper investigation of the subject in the laboratories of the world. I had retired from business, was spending most of my time in Europe, and that particular summer expected to spend all the summer season around the classic shades of the University of Oxford. But business affairs in this country caused me to return somewhat hurriedly. Within a week from the time I left London I landed one night in June in the city of Chicago, and it was in the midst of the Spanish-American war, and Chicago more than any city in the country was ablaze with the excitement of the occasion. The streets were aflame with electric lights, and were filled with people who came down town to see the excitement. I walked about the crowds until quite late in the evening, and tiring of it, I turned with a friend of mine from New Orleans into Adams street, and as we came opposite to the portal of the Pullman Building I saw a policeman with a disgusted look on his face, with a little mite of a boy not more than three or four years of age. The policeman was lecturing him. The little boy's face was lifted to the light, and he was protesting in his own childish vocabulary of the slums, his innocence, and just as we approached we saw the policeman push the little fellow off the sidewalk into the street, giving him a pretended kick, and with the benediction, "Now, git, you little bastard, and to hell with you." And being a student of sociology, it struck me as very singular that a representative of the law should address innocence in that way. I stopped, questioned the policeman, and found him very amiable. He told me it was all they could do; that during these times of excitement gangs of youngsters came from the different parts of the city and mixed with the crowds and played practically highway robbery. These little fellows would go into the stores or shops, grab some of the wares, and then run and mix with the crowd, leaving two or three little babies, so to speak, to be pounced upon by the shop people. These shop people would then be satisfied to get even if they could turn this gang over to the policeman on the beat. This was done. The policeman on the beat would take the little children or child; he could do nothing with him, consequently he had to let him go. The policeman said to me, it is the game of these gangs of little rascals. They know we have no place to put these babies in, consequently they leave them to be caught by the shop people; the shop people are satisfied if we give them a good lecturing, and that is about all we can do. It is part of their game, and they know it. When the little fellow scampered across the street with the policeman after him, others made derisive cries to the policeman, showing their contempt of the law. After this scene, and walking out on the lake front, I thought to myself, think of that little mite of a boy being taken up in a condition for which we are responsible. We know he never knows what it is to be good until he has been branded as a criminal and for the rest of his life tabooed. This struck me as being as uncivilized a condition of affairs as one could possibly imagine. I walked up and down the lake front until the early hours of the morning with my friend. At any time I would have been willing to have given any amount of money I could afford if I had had the quickness, if I had had the acuteness to follow that little fellow home, find out the conditions in which he lived, make an effort to give him a chance for his life, for respectbility, to give him at least an opportunity and a square deal for respectability. But he was entirely lost and could not be identified. I do not know that I would have recognized him in the group, but he remained on my conscience as a citizen of the world. I went to the Auditorium where I was living, went to bed, went to sleep, but woke up very early in the morning with that little fellow on my conscience, and while I was thinking about him there obtruded upon the thought this picture, and it occurred to me that I was holding in my hands a bag of shot. I had been examining one of these pellets of shot, for what purpose I do not know. It interested me in some way, but all at once it slipped out of my fingers and back into the bag. I was disappointed. Of course, I could not reclaim this shot from among thousands of others which were there in the bag; but all at once it occurred to me like a flash, that vision, that picture is symbolic of your little lost waif of last night. He is there. The only way you can find him is to get them all. (Applause). One would think, and I thought, that the task was a prodigious one, impossible, you might say, and yet that little fellow was so much upon my conscience that I gave no thought to anything else. I began at once to make inquiry at the kindergartens, of the people engaged in the child-rescue business, particularly of Miss Ammalie Hofer, and others, and I corresponded with those occupied in the same philanthropy in London, in other parts of the world, and in this country, and soon found it was the consensus of opinion that if the public conscience were sufficiently quickened to concentrate upon the very needy children, those in greatest need first, it would give them all a chance for respectability, and not only that knowledge came to me from the different sources that at least ninety-nine per cent ought to be cured, and ninety-eight and a half per cent of those who were hopelessly criminal under the present conditions could be saved. If only the facilities for learning were given to them, or brought to them, and those facilities have been brought to such people by Dr. Barnardo, of London, whose chronicles during thirty-two years show only 1.84 per cent of failures to make good children of the worst products of city slums. I had been living for a number of years in the city of New Orleans and there had become aware of the importance of quarantine, and sociology being my study, I had been thinking of applying the thoroughness of quarantine to the social question, that is, particularly to the education of the child, and it seemed to me as if it were an easy matter if our government were to concentrate upon the unfortunate child, beginning with those in worst need first, and working upwards towards the circumference of the subject, for it would be as easy a matter to accomplish a complete quarantine in social circles as it was to keep the microbes of infection out at our ports of entry, and that idea fermented in my mind until I sat down here in the city of Chicago to write upon the subject, and the result of that was a little book which I published thirteen years ago called, "That Last Waif, or Social Quarantine." While writing the book I took up the study of the subject of my own disabilities, and that was the beginning of the experiments which have been connected with my name. I will not go into the details, but let me give you a little idea of the progress of these experiments.

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*A lecture delivered under the auspices of the Chicago-Odontographic Society at Orchestra Hall, October 27, 1910, to an audience of 3,000.

Between times, while I was at work on my book, I had nothing to do but to think of the subject of my experiments. My friends were out of town, so I had all my time to devote to the subject of my own disabilities. I had been connected with large businesses in different parts of the world, and consequently was inclined to apply business methods to the study of the subject. I believed nature intended only well for us; that if we suffered in any regard in health, in lack of efficiency, it was the result of our own misdoing, and not the intention of mother Nature herself. That gave me faith to believe that the disabilities from which I suffered were curable; that I was responsible for them, and that possibly I might learn the cause of these disabilities and correct the faults. I had been denied life insurance, as Dr. Bentley has told you, and knew the extremity of my condition. Furthermore, applying business principles to the study of the subject, I took mother Nature into my confidence, and I had that faith in her to believe that if she had given us any responsibility in the matter of our nutrition, I knew my own disabilities were the result of malnutrition. I believed that mother Nature had given us responsibility in the matter, that she had not hidden it away within the dark and tortuous complexity at the alimentary canal, but had located it before we had lost control of the food, consequently before the food was swallowed. I went to the libraries in Chicago, of which you have a great number, hunted up the books on the subject, and found that while there were many treatises on the subject, they were not all in agreement, and therefore applying business reasoning to the question, I said to myself, if there is no consensus of agreement, nobody has yet found the truth, and consequently there is room for me. I had my time to myself; I had the means for carrying on the investigation, and I determined to devote myself to it, and in looking over these books I found that whereas there were 2,500 to 3,000 pages of quarto fine print devoted in the physiologies, to the pathology of the subject, which belonged to the natural responsibility, that part of the anatomy, which was the human responsibility, namely, the first three inches of the alimentary canal, was scarcely touched on. There were only a few paragraphs, scarcely a chapter, devoted to that portion of the alimentary canal which was our own responsibility. That seemed to me altogether unreasonable, and I determined to devote to threshing out and inquiring into the other three inches of the alimentary canal. In running over the books upon the subject I found that the author of one of them was William P. Harris, who was then Commissioner of Education of the United States, the highest authority in the land, and he had published a little book on physiology for use in the primary schools, and when I came to the chapter on the senses I found that he had not only attempted to describe them, but he had presumed to give them character, and he said of taste, "It is the lowest of the senses because it caters to intemperance." I do not agree with him there because I do not believe that mother Nature had ever degraded any of her processes. If taste had become degraded, it was through our misuse or misunderstanding of it, and not through any intent of nature to trap us; consequently I settled at once upon the determination to thresh out taste. In the study of tastes I found it was necessary to keep the food in the mouth as long as possible to watch the developments of taste, and here came my first surprise, my first revelation. When I took up the study of the subject I thought I would devote my whole time to it and have it threshed out as quickly as possible, but I found, unlike Mr. Edison, who could spend eighteen or twenty hours a day on the subject of electricity, I could only devote from three-quarters of an hour or an hour a day to the observation of taste, because it would not lend itself for a greater length of time to observation. It became stale. (Laughter). It became sated, and consequently I had to go on tediously using only three-quarters of an hour to an hour and a half a day in the investigation. But there were revelations worth while. Even foods which I had thought less off, such as bread, butter, potato, and simple foods of that kind, were more delicious than any cake or any complicated mixture of spiced foods when given an opportunity to develop themselves by the aid of the juices of the mouth. There I immediately found that my own knowledge of the subject was deficient, and it was astonishing to me that physiology could not give me light upon the subject. I went on for two or three months, and the result of that inquiry into the mere sense of taste brought results to me of the utmost importance. At the time I weighed in the neighborhood of 215 pounds. I was more like a barrel than a man. My principal trouble was obesity, and when I began to take my food in the way I have told you, that is simply with the idea of extracting the taste, I found the quantity which satisfied my appetite was much less than I had been expected to take, and at the same time my waistband began to get lesser and lesser until I sought a pair of scales and found I was losing from three to four pounds a day, and gaining in good feeling and in everything which goes to make up efficiency as I was losing my weight. I then became more deeply interested in the subject and enlisted the assistance of a number of persons, principally tramps (applause), but among them was one who was as emaciated as I was obese, and as we sat together day after day in some one or other restaurant, beginning with the Auditorium Annex, Palm Garden and going into the five-cent restaurants of Ffth avenue, trying them all, following the process of getting all the taste out of the food, while I was losing three-quarters of a pound or more a day he commenced to gain in a small measure, and we began to approach each other by the same process (laughter), and inasmuch as that interests you, let me tell you a little incident. Mr. Henry Phipps, philanthropist, a former partner of Mr. Carnegie, told me of two brothers in Pittsburg, one of whom weighed nearly three hundred pounds, and the other was a mere skeleton. He had an interest in the brothers, and sent each of them one of my books called the "A B C, or A B Z of Our Own Nutriton." They respected Mr. Phipps, and any suggestion he might offer them, consequently they read the books, and as a result the very stout brother lost fifty pounds, and the very lean brother gained fifty pounds. They had the same amount in the family, but it was better distributed. (Laughter and applause). These experiments here in Chicago were very interesting, and the revelations they brought have been of the utmost importance, and I pause right now at this point to tell you what has been the outgrowth of these simple experiments undertaken here in this city. It is conservatively estimated that half a million dollars a day is being saved to the domestic treasuries of the world as the result of that investigation. That may seem to you to be an enormous sum. It is more than Mr. Rockefeller or Mr. Carnegie could give away, and consequently it is a benefaction of the greatest importance. It seems ridiculous, but let me give you just one little item.

Eight years ago Dr. Kellogg, of Battle Creek Sanitarium, who had become thoroughly converted to what is now called Fletcherism —mind you I have not told you what it is yet, but I am going to tell you what it is afterwards—while on a visit to the south, coming back through Nashville, went to visit a missionary farm which is located about sixteen miles from the city of Nashville. It is supervised by Professors Sutherland and Percy McGann. These are young people who are devoted to the missionary cause. They went to that farm and worked upon the farm to earn their livings and their tuition, and they remained there and worked upon the farm until they became imbued with the idea and then went to the mining districts of North Carolina, Tennessee, and elsewhere and opened up little missions, little schools, departments where they teach the religion which is their faith, and also the principles of economics. There was quite a large class in existence at the time, and Dr. Kellogg delivered a lecture entitled "The Gateway to Health and Efficiency," and he described the process now known as Fletcherism. As the result of that lecture the whole school started in to experiment, and at the end of six months it was ascertained that the drafts upon the commissary had been not quite half as much as they had been formerly. This was a revelation of such an economy that they made careful eating the fundamental principle of the education of the mission. As a result young men and women went out into the mountains and opened schools and there they taught careful eating as the first principle of education, and really as a religious function. Only two or three weeks ago Senator Owen, of Oklahoma, and I were together getting information upon the subject to be presented to the United States Senate some time in the future, and Professor McGann gave us this information. He said that the saving in the cost of food has been more than three dollars per month per individual—and there are a thousand persons there—as the result of that one lecture. When we consider the various places in the world in which this careful method of eating is practiced, you can readily see that it does not take long to account for more than half a million dollars a day being saved. I have told you how important this movement has grown, and now I am going to tell you something about it.

I have been delivering lectures in Europe and America for a number of years and my principal difficulty has been to explain it, not because it is a complex thing, but because it is so very simple. Professor Irving Fisher, at Yale, in connection with some extensive experiments he had made formulated the whole secret of attaining and maintaining equilibrium of nutrition which is the foundation of dietetic righteousness, within three hundred words, and as the result of those experiments the young men of the Yale University reduced the cost of their living by one-half, becoming immune to any of the diseases which were current at the time. In the psychological laboratory it was found that mentality was quickened, and altogether they were made superior men in health and efficiency simply by following the formula which I am going to give you here tonight. The American people always want to know the reasons for things. It is best to give reasons first, and then the explanation afterwards. It seems a ridiculous thing in the beginning of the twentieth century that one person who has been upon the platform before audiences like this should presume to teach people how to eat. (Laughter.) If Mr. Edison were to come here—and, by the way, Mr. Edison is one of the most faithful and ardent Fletcherites I know of anywhere, and so also is Mr. John

D. Rockefeller—you probably would not be able to follow him through the intricacies of electricity. Mr. Rockefeller never allows any good things to escape him, and you will remember some six or eight years ago the papers were filled with little paragraphs stating that Mr. Rockefeller would give a million dollars to have good digestion, but could not get it. The suggestions I am going to give you were brought to him; he saw the value of their application, applied them to himself, and if you have been very observant you have not seen anything with regard to Mr. Rockefeller's ill health in the past six or seven years, and it is due entirely to the care with which he has taken all his food. As I have told you, if Mr. Edison should come here and speak on electricity, because it is his specialty and not yours, you would be perfectly willing to learn from him, although you might not understand everything he said, and when I presume to teach you how to eat you resent it because you say we have all similar experiences with reference to eating. And you say, Doesn't one person know as much about eating as any other preson? Some may have had more practice than others, and, on the other hand, some may suffer more from dyspepsia than others. Under primitive conditions for which the body of man was made foods were found in the form which made it necessary for us to bite it out of them, to use our teeth, and the consequence is the skeletal remains of prehistoric men dug up from the deep strata of the earth are found to have thirty-two teeth in their heads, well worn, but still without any decay, and many of those persons, judging from the evidence of their skeletons, may have been as old as Methuselah. Consequently, primitive man was compelled to use his teeth, to keep his teeth in order, and his health also from the fact that he lived to a great age. But with the coming of cooking and a plethoric supply of foods, and more particularly with the coming of excessive hospitality, and eating meals on schedule, we were surrounded by a menace, and thus in the presence of that menace we required all the science possible to protect us from our luxuries.

In the latter part of the last century enormous progress was made in harnessing the forces of nature, and then we turned to domestic animals, and improved the quality of our live-stock. Then we turned to the products of the earth, improved the products of the dairy, and of the field until we brought them up to a fine point from a sanitary point of view. We brought them up to a fine point of perfection, and when we had harnessed the abundant resources of nature and had surrounded ourselves with a plethora of luxuries we found we were in no condition to enjoy them because just at the time when we had acquired maturity we found ourselves on the toboggan to the grave, sacrificing our education, sacrificing our birthright in illness and death. Then we turned from the fields and from the animals and began to study the question of our own health. There was no difference of opinion. It was a case of malnutrition, and hence, it has become the subject of inquiry, how much to eat, when to eat, and questions of that kind were those that naturally came up to us first, and a great many books were written on the subject, but nobody, I believe, until I took up the study of the subject, could apply business principles to it, or ever thought of the question of how to eat. But in that one question, how to eat, all the others are solved. The question of knowing how to eat, when to eat, how much to eat, is solved by the appetite. If you know how to eat, the appetite becomes normal, and there is no difficulty whatever in permitting it to prescribe. The question you will naturally ask now is, How to eat? And I will tell you, and although there are thirty-five hundred persons in this auditorium tonight or more possibly, every one of whom ought to know how to eat, and ought to eat in a proper manner for their own sake, for the sake of themselves, for the sake of their tempers, for the sake of their health, for the sake of their energy and general efficiency and respectability, yet probably not one in a hundred, or one in twenty-five will pay any attention to it, and for the reason it is so perfectly simple that it is ridiculous. (Laughter). If I were to come here with medicines put up in bottles, or put up in the form of pills, with something to sell, something to offer you for so much, probably you would all give it a trial, but when it is merely asking you to learn how to eat respectably and in an epicurean manner, you refuse to be enlightened. But nevertheless, being a missionary, being a propagandist, it is my duty to tell you whether you pay attention to it or not, and let me tell you that this question of getting all of the taste of food out of the mouth while it is in the mouth is a very important one. The only thing necessary in the economy of our nutrition, which does not have taste, is water, and that may be taken in the ordinary manner when one is thirsty. Water need not be Fletcherized (laughter) unless it is mixed with lime juice and sugar and other things, but everything which has taste should be Fletcherized to the end that all of the taste is taken out of it. It is not a tedious matter. It is a matter of thoroughness, and therein lies the secret of health and efficiency. I am going to give you an opportunity to test it, and when you go home tonight you will all find probably in the cupboard some bread, it does not matter whether it is fresh or stale. Take a portion of it about the size of a communion lump, and how many of you are there who know the size of a communion lump. (Laughter.) The way to learn how to eat by the treatment of that little piece of bread is this: take the bread, put it in the mouth, and you will notice that seemingly it has no taste at all. It is starch, it is proteid, it is mineral salt, but it is not in digestible form when you put it in the mouth; it must be transformed into dextrose, or grape-sugar, which is the assimilable form of starch before it is in a nutritive state, and that can only be done by the use of the saliva. Some of you can do it better than others because you have better teeth, and if any of you find in the drawing of this taste with your teeth it is in any way difficult, I advise you to go at once to your dentist and let him look over and put your teeth in good condition, because good teeth are your best friends in this question of attaining and maintaining health and efficiency, and for that reason I most strongly approve of the general movement which is spreading not only all over this country, but in Italy and elsewhere in Europe, for the taking care of the teeth, oral hygiene, as is is called, and the fundamental principles in the care of the teeth, and it will do more good than any of you can realize. But to return to the communion lump. After you have put bread in your mouth, hold your head in this manner (indicating), face down, for what reason? For this reason, as you are looking at me now in trying to swallow, you find it difficult, do you not? It you raise the chin a little higher you will find it more difficult still, and when you raise the chin higher still you will find it impossible to swallow without considerable contortion. But if you bow the head in this way so that the tongue hangs perpendicularly in the mouth you will find you can swallow with the greatest ease. From this physiological fact comparative anatomists and zoologists argue that we once took our food on all fours. (Laughter.) But whether that is true or not, it is the easiest way in which to swallow, and it facilitates very much the experiment I am trying to describe to you. As I told you, bread as it is in the mouth, until the jaws begin to move, until you begin to masticate, has no taste whatever. But with the movement of the jaws the saliva flows and mixes with the bread, there begins to develop a sweet taste, and as that taste develops it gets sweeter and sweeter until it is sweeter than any cake, and that was a revelation to me in my first observations upon the subject. Holding the head down, as I have demonstrated to you, the bread will become moist gradually, and then creamy, and in that condition it will crawl up the center of the tongue and collect at the gate which separates the mouth from the swallowing area. There is a true gate there, nature's food filter or true gate, and it is a true occlusion which shuts off the mouth during mastication from the swallowing area. The creamy substance will crawl up the tongue by the force of gravity and assemble at the gate, and when a sufficient amount of it has accumulated, and this is determined by the sense organs being in the right condition, there will be an inclination to swallow, which we call involuntary swallowing. It is proper to swallow then because the food is ready for digestion. Taste has been extracted from it and the human responsibility in the matter has ceased. The food, as it is drawn back into the swallowing area, is picked up by the peristaltic rings if we have done our part right. This is not only true with a piece of bread, but with every morsel of food which has taste, whether it is solid, whether it is in a condition of mush, or whether it is liquid. Dietetic righteousness insists upon all of the taste being taken out of the food, whether liquid, solid, or mushy, while it is in the mouth, and there will be that alternating process involuntary swallowing, going on as naturally as it is to eat itself. No matter what the food is, it is essential to get the taste out of it while it is in the mouth.

I am going to give you a picture of the digestive process which very few persons know, it has not yet been published, but it has come from the experiments of Pawlow in Switzerland, and Dr. Walter B. Cannon, Professor of Physiology in the Harvard Medical School, Boston, and it is most interesting from the fact that it shows how resourceful nature is in utilizing one function, you may say, or one expression for several purposes. While you were enjoying the taste of that piece of bread in your mouth, getting full epicurean enjoyment out of it, being rewarded for your faithfulness in the matter, the record of that taste was carried to the walls of the stomach by the great vagi nerves, and taste became intelligence to the stomach of what to expect. How much proteid, how much of the transforming was necessary, how much of the mineral salts there was in the morsel of bread, was conveyed as intelligence to the stomach, and the stomach began to pour out in advance of the coming morsel the digestive juices adequate and prepared for the digestion in the right amount and at the right time for digestion of that nourishment when it arrived in the stomach, and this was poured out while the food was yet in the mouth, so that when it finally arrived in the stomach it dropped into the digestive path. It is readily seen that if that food has only been half tasted, only half of the intelligence of it has been carried to the stomach, and only half of the digestive agents required to take care of it have been secreted, but if it has been thoroughly done the process will be completed in a thorough manner, and we hear nothing more of it, and know nothing more of it, and have no information regarding it excepting in terms of superabundant energy and robust good health. To get all of the taste out of the food, that is all of the human responsibility in the matter of nutrition while the food is in the mouth. But the food has not yet been digested, and until it is digested and taken up as nutriment and stored in the body for further use our responsibility has not ceased. If we do not sanction and cultivate the propriety of favorable emotional states while that food is in process of digestion we interfere with the process, and I will describe to you some interesting experiments which have been carried on for the past ten or twelve years by Professor Cannon at the suggestion of Dr. Bowditch. When cats are used as test subjects, by the aid of the X-ray we have a perfect picture of the digestive process. Cats are used, of course, because the human subject is not eligible for the purpose. We have found in looking for means of studying this subject that the human head is too full of bones. We cannot get even the X-ray through it. With cats it is different. The cats are allowed to become very hungry, as it is necessary in the process of demonstrating digestion. They are then given food which is palatable to them, but unknown to them the food is stained with subnitrate of bismuth, which is opaque to the X-ray. The cats are laid upon a fluoroscopic screen, tied with blue or pink ribbon to suit the esthetic taste of the cat, because we want favorable emotional states. The cat lies on the screen content and happy and purring and satisfied, and while that satisfaction continues the digestive process goes on merrily and happily. The food is picked up by the peristaltic rings and is carried on to the stomach, and with that dropped into the stomach through the cardiac opening. The peristaltic rings move about in a characteristic manner, depositing proteid on the walls of the stomach, and separating other portions, and finally you see the food hesitate at the pyloric end of the stomach, and little bits of it will shoot through into the duodenum, and when a quantity has been collected there, that interesting process which is called segmentation begins. The valvulæ conniventes, of which there are a number in the small intestine, dip down to each other, and as dogs lick cream out of a dish, so these valvulæ conniventes lick up the nutriment and carry it to the blood and lymph streams, this being the process of assimilation, of utilization of that food, and that goes on merrily and happily as long as the cat is in a favorable condition, as long as he is purring away on the fluorescopic screen. If you distract the attention of the cat by irritating it, so that he begins to spit instead of purr, the process stops. It is retarded or stopped by irritation; the muscles become lax; the digestive juices cease to flow, and that food which a moment ago was live nutrition in the process of digestion becomes inert, dead matter, and it is almost impossible to start the process again. You may have stopped it by a single thought, by the receipt of bad news, by a cross word, but it is difficult to start it again after once being stopped, and then begins that trouble which is the source of our disabilities. That matter in the stomach undigested and practically indigestible is dead, and it is the same within the stomach as a dead cat or dead rat would be in the gutter by the roadside, and the same thing happens to the food in the stomach as happens to the animal dead by the roadside. Undisturbed, the bacteria attack it; the fumes of decomposition are carried to the blood and lymph streams, circulate through the body, and every cell is liable to become impaired through this polluted medium, and what is the result? A nonresistance to disease is developed, pessimism, a grouch, bad complexion, profanity, all of the evils to which man is sometimes addicted may be traced back to autointoxication the result of putrid decomposition due to the careless taking of food. There are two ways in which you may accomplish that object. You may send food into the stomach half tasted and half digested, or you may stop the process of digestion in the middle of healthy digestion by unhappy states of mind, and consequently at the table it is of the utmost importance that congeniality should be cultivated. There should be no controversies, no discussion of politics, no discussion of the suffrage question, and no discussion of religion. I gave this advice to an audience some time ago, and a gentleman in the audience was very much impressed. He had been in the habit of ventilating all his troubles and all his worries at the table. He determined to reform. He went home, and without saying anything whatever to his wife or the members of his family, the next time he went to the table he began this program: "My dear, I never saw you look so well as you do now." (Laughter.) She looked at him in surprise. "You certainly are a peerless cook; I never smelt anything so delicious as that chicken." She looked at him with added surprise, and when he essayed to pay her a third compliment she picked up the chicken by the legs and flung it at him, saying, "I will teach you how to be sarcastic." (Laughter.) Hence I advise you to be diplomatic in making this change. It is not a part of Fletcherism to throw a chicken at people, but it is necessary during the time that food is to be digested that we should cultivate every element of love. We should love everybody, and even those whom we hate, simply for our digestion's sake. This is a business application of physiology, and we do it first for the sake of digestion and for our own sake, but it is likewise for the benefit of everybody else. It is a question that is mental and dental, with the dental merely subservient to the mental, and that is why Christian Science gets a large part of its logical benefit. It is truly physiological. Observe the calm complaisancy with which they look upon everything, the calm with which they go to the table, the natural way in which they either think or speak or pronounce a benediction is all favorable to digestion. And they say asking grace before meals is a physiological process, a beneficial process, and so is everything which helps to make people calm, peaceful, optimistic, amiable or agreeable. They are assistants of digestion. I have now given you the secret of Fletcherism as it has been called. I have now told you how it is possible to attain and maintain the equilibrium of nutrition under any conditions of environment, under any supply of food anywhere throughout the world, whether in the camp of the lumber jacks, whether in the hut of the savage, whether in any of our sumptuous hotels or restaurants, no matter where you go, if you know how to eat, and if you know how to get good out of your food, if you wait till there is an earned appetite, whatever it may be, it is possible to attain and make automatic the equilibrium of nutrition which is the foundation of health and of efficiency and morality.

There is one point I have neglected to speak of, and that is never take any food until you are sure that there is a keen physiological hunger. There would be many differences of opinion expressed if we were all called upon to describe hunger. If the members of this audience were called upon to describe separately hunger there would be a great many different discriptions of it. But let me tell you how to know what true hunger is, how to identify it. It is never found or expressed below the guillotine line. It is not a body symptom. Faintness, or any of those symptoms of which we sometimes complain as felt within the body are not symptoms of hunger, but the reverse. They are the same in regard to food as the dark-brown taste in the mouth and the inordinate thirst the next morning after a debauch. They are the result of indigestion, of over-eating, or fermentation, and when the body is in a state of nutrition or nutritive equilibrium there will be no sense of want felt below the guillotine line. It is above the guillotine line where all the symptoms of hunger are felt, there where all the senses are bunched. That is practically the will. It is practically the place where the chauffeur, so to speak, gets command of our nutrition, attaining it and maintaining it, and as practical men we learn to become competent chauffeurs of our corporal automobiles. I say corporal automobile because it is a familiar comparison with us, and it is all attended to in the front seat. It is a twofold question, mental and dental. How are we to know what true hunger is? If we have given sufficient time to acquire bodily want; if we feel a whinnying like a horse, if we have a good appetite, we may take food, but we should never take food without an appetite for it, as it will never do any harm to wait a week or two weeks for an appetite if it does not come before.

I have made some observations with regard to the psychology of appetite. I went seventeen days without that expression of what might be called hunger. The psychological suggestion was that I did not need food. The vital organs were drawing upon the stored resources, and there was no physiological expression of hunger during that time. When I broke the fast voluntarily finally, after the symptoms of auto-intoxication for which I was looking had set in, there was no hunger, and it may amuse you, and be instructive as well, to tell you that I broke that fast on baked beans, and it was for a purpose. Beans are rich in proteid. My supply of proteid in the blood streams had been depleted, and my mind turned towards beans just in the same way as young people's minds in June turn towards love. Whenever I thought of breaking the fast I thought only of beans. I had them prepared. It took twenty-four hours to prepare them properly, and when they were brought to me finally, they were put before me in the original pot in which they were baked, and they looked beautiful and smelled delightful, but I had no desire whatever to eat them. Finally, I forced the situation by taking a few beans on a fork and putting them in my mouth, and holding them there for some time. Seemingly there was no taste, and still no desire to eat; but let me tell you as a matter of information, the moment I crushed those beans with my teeth it was as if Payne's fire works had broken loose in my head. It seemed as if there was the bursting of a rocket. Taste went to the roots of my hair and to the tips of my ears. It permeated my cheeks; my head was full of taste. I never tasted anything so delicious in my life. I gloried in that taste. The second mouthful of beans tasted equally well, and from that time taste began to wane, became less and less, and when I had consumed only three-quarters of an ounce of beans my appetite for the moment had been completely satisfied, and there was no return of it until twelve or thirteen hours afterwards. Let me tell you in connection with that experience that I went a hundred and a half hours without water, and in the beginning of my experience I determined to wait until acute thirst set in, and that came after pitching baseball in a hot sun for an hour and a half and that evening there came an acute desire for water, and that was satisfied by only a half cup of water, so that when you put yourselves in a condition to know what a good appetite is and bid that appetite to appreciate food when you come to it, you may know that it is not a case of ravenous return, but one of gradual return to the normal habit. Now, ladies and gentlemen, I have told you in two or three different ways, somewhat disconnected, but as impressively as I know how, the secret of attaining and maintaining the automatic equilibrium of nutrition, which is the basis of health and efficiency, and it is all performed at the gate, within the first three inches of the alimentary canal, and it is of the utmost importance that we know that and devote time to it. Many persons have said to me, "Life is too short; I cannot devote the time necessary to it; I have my work to do." Let me tell you, it is not a tedious process. It is only a careful process. It is simply a question of attention and deliberation not upon a mechanical act, but upon getting good taste out of the food and thoroughly enjoying it.

I am very much interested in the movement which this meeting inaugurates for the second time after twelve years delay, as Dr. Bentley has told you, in the city of Chicago. Let me tell you a little story. It was an incident which turned my attention to this subject especially, that is, the value of oral hygiene, or in common language the taking care of the teeth. I was living in Vienna at the time, some ten years ago, and there came there from Australia a family of English people, father and mother, and two daughters. They were beautiful daughters, as English daughters usually are. They had been living in Australia for a number of years; the father had been the manager of a bank in the interior of Australia, but he was retiring on his pension. While they were living there they did not have the advantage of the best of medical care and comparatively no dental care. One of the daughters became an invalid She was fading and fading. They did not want to take her to England until the time of the father's retirement occurred, and she was kept on and on, and finally they despaired of getting her back to England as she was in such poor condition of health. They came back by the way of San Francisco, and while there she had some trouble with her teeth. She was taken to a dentist, who treated her, and gave her a good deal of advice in the matter, and it resulted in the family remaining there for two or three weeks to have her teeth put in good condition. From the time he began to work upon the teeth she began to pick up and by the time they got back to England her cheeks were rosy. She was restored to health, and I never saw a more perfect specimen of beautiful young womanhood than was she at the time, simply the result of having her teeth attended to. Shortly after that I went to England to the University of Cambridge to submit tests here under Sir Michael Foster and visited a barber shop, and in that barber shop hung the sign, "Teeth Sealed," showing that not very long ago the profession of dentistry was in that crude and primitive condition where the barber scaled the teeth, and the blacksmith, the stronger man, pulled them, (Laughter) and that was all the dentistry in existence. Those who are familiar with the subject know that the specialty of prophylaxis, that the specialty of cast inlays, that the specialty of orthodontia in the dental profession has grown to one of first importance not only at the gateway of health, but in the science of the application of means to an end. It has become wonderful the appliances that are used in orthodontia, the tools which are used in ordinary repair work, and the skill with which the dentist is able to put patients through very indirect proccesses of repair without great pain is wonderful to behold, and I sympathize very much with this movement of giving the poor children the opportunity to benefit by the science which the dentists have acquired and by the skill which they possess to treat the teeth.

At Annapolis, at West Point, students have been very much interested in these tests and have taken advantage of them with great benefit to themselves and others. A large number of investigations have been made in the public schools whereby it has developed that anywhere from forty to sixty percent of the children are not in a condition to properly take food on account of neglected dentistry. In the city of Boston not only has the Harvard Medical school added a beautiful new building and infirmary to its equipments as a result of the agitation which I have been connected with, but a gentleman, whose name I think is Mr. Henry Forsyth, has contributed two millions in dollars for building an infirmary and an endowment to care for children's teeth, so that any child betwwen six and sixteen years of age, who cannot afford to have dental work done, need not go neglected. They propose to take care of the teeth of all children between six and sixteen years of age, when they are supposed to take care of them naturally.

Only the other day in Cleveland, Ohio, under the care of Dr. Ebersole, I was shown a school where some forty children were under constant care, and I was shown the statistics which proved conclusively that those children, who had been brought back to health and efficiency, had improved in scholarship simply by the proper care of the teeth, and if there is one message at this particular time all need, which I wish could be spread as widely as possible, it is this message of interest in oral hygiene, and especially in its application to school children—to those most in need first, and let me tell you my acquaintance with the dentists has been a revelation in sociology. They are men who do things. They are men who work with their hands. They are men who earn their competency, and their incomes from their patients as the results of hours of labor, and yet those very same men, to whom these hours are worth everything to them because they have to practice, and it takes up all their time, are the first to give a day or two days a week out of that time for the care of the teeth of the children of the poor, and are stimulating agitation for that care. It seems to me, as if it were one of the altruistic movements, one of the make-good movements of the times, and everybody should know it, and it gives me great pleasure every time I have an opportunity to tell an audience about it and ask them to come forward in their support of this movement in the interest of oral hygiene in the schools.

Now, ladies and gentlemen, we have occupied as much time as is ever desirable to try and hold an audience. The subject, I assure you, is one of the most interesting and important that can be imagined, and almost everybody is personally interested in the matter. I thank you very much for this close attention.

It is my habit at these gatherings to state, as I have done already, the main propositions, inadequately as I think, but after having stated them, to give the audience an opportunity to retire, if they desire, particularly those who wish to catch trains, or those who have been sufficiently enlightened upon the subject and urge those who remain to ask questions or listen to the answers in the remaining few minutes at our disposal in order to clear up a few points I may have neglected. Let me tell you, as a matter of experience, that sometimes these questions are much more amusing and enlightening than the main theme.

Let me thank you, ladies and gentlemen, for your considerate attention and for this opportunity of making my debut in Chicago after thirteen years of interest and study in this subject. (Applause.)

QUESTIONS AND ANSWERS.

Question: How about drinking water with meals?

Answer: Many people recommend not to drink water with meals, but the latest word from the Rockefeller Institute of Research is that if there is thirst, water should be taken because the blood may not be in proper condition to digest food unless properly supplied with water. Liquids should not be taken to wash down food or to dissolve food, but if there is thirst it should be taken, a small quantity first. Water should only rarely be taken except at meals, not always then, and the best results have been obtained in that way. There is another point to this, namely, many persons are advised to drink two or three quarts of water a day, as prescribed by their physicians. I do not believe that is a good thing. One of the chief resources of the Spanish inquisition was what was called the water cure. Persons were given all the water they could drink, and more was forced upon them, so that it became expuisite torture. This plan was devised in the Philippines in order to get the natives to divulge secrets. People who are taking four quarts of water a day are performing a mild form of the Spanish inquisition or water cure.

Question: How can you masticate water or liquor?

Answer. How do tea tasters and food tasters get the taste out of those things? It is not necessary to use the teeth. It is not a question of mastication, but a question of sipping up the liquid to get the taste out of it.

Question: How shall a person, who is compelled to use the restaurants, have an opportunity to Fletcherize?

Answer: In the restaurants they do not charge you for time (laughter), and if you want to get your money's worth out of a meal get as much rent as possible with your meat. (Laughter.)

Question: Supposing you have only ten minutes in which to eat, how would you manage then?

Answer: If your saliva is in good form and you are deliberate, you can satisfy a workingman's appetite inside of fifteen minutes, and you can two-thirds satisfy the appetite in ten minutes, but if you only have two minutes in which to take food, be deliberate, because it is only what you take that is nutritious; then as to why you should be deliberate. If you attempt to take in within two minutes enough food to fill the stomach you set up a process of obstruction, and it is really an obstruction, and not an assistance to take in food in such a hasty manner.

Question: Do you Fletcherize milk?

Answer: Most decidedly. We take our cue in that regard from the infant, and those who take milk should take it as infants take it, get the taste out of it, although it is not necessary for the child to have the milk Fletcherized for this reason: until the eruption of teeth there is no chyle in the saliva; it is merely mucus for the moistening of the mouth of the child, but with the eruption of the teeth there come elements in saliva for digestion and for change. As the milk comes from the mammary gland of the mother and passes into the stomach of the child it is alkaline and in proper condition to be neutralized at once. But milk which has stood in the air or mixed with water immediately begins to form bacterial cultures, becomes sour, as it were, no matter how it is kept, and it should be treated by the saliva in passing. All of the taste should be gotten out of the milk. Once for seventeen days I subsisted on milk alone, nothing but milk passed my lips, and from that time I got all the taste out of the milk. I had learned to like milk so much that I did not want to give it up.

Question: How about Concord grapes?

Answer: This is the season when that question can be asked because Concord grapes are in their prime. We all of us know that right underneath the skin of a Concord grape is a sweet morsel. The pulp of the grape, if it is very ripe, is still sweet, but if it is not very ripe it is sour. The sweets are contained within the pulp. The natural thing to do is to break the skin of the grape to enjoy the sweet lying underneath the skin, and if the grape is ripe enough to be enjoyable, further on to separate the seed from the pulp to enjoy the pulp and discard the seeds. I believe it is dangrous to take the seeds into the body as many persons do. Let me tell you, the whole secret of conforming to the natural is to take those things which appeal to your appetite and agree with you as the true units of the body, and if you take food deliberately for two or three days the appetite will become normal and will be the true prescriber, and you will take what is most agreeable and discard that which it not agreeable.

Question: How about the use of alcoholics?

Answer: I am glad you asked that question as it is of the utmost importance. Professor Percy McGann the other day at Battle Creek told the audience at the same time he told them of that wonderful saving of three thousand dollars a month in their community in food, that about two years ago a man was brought into the mission on a stretcher suffering from delirium tremens from moonshine whisky. After two or three days they spurred him up and taught him how to Fletcherize his food, and during the two years which has intervened he has not had any desire to take alcohol. In the East members of the benevolent organizations in the Roman Catholic Church, the Knights of Columbus, etc., have issued circulars over the signature of Father Higgins of Germantown Seminary advising laymen and the world to teach Fletcherism for the economy there is it in, and this circular goes on to say how it modifies conditions which make for poverty.

Question: Have you ever known a Fletcherite to take alcohol to excess?

Answer: No, but I have known of instances where persons who had been either moderate drinkers or excessive drinkers of beers, wines, or alcohols, have modified their consumption of these things, and in most instances the desire for them has sloughed off altogether.

Question: Can a thin man Fletcherize?

Answer: In the beginning I told you of the experiments which were made with two men, one of whom was thin, but who gained in flesh in the beginning while the other lost flesh, but gradually they both picked up and got to a normal condition. Normal condition is not the same in all instances. Some men are born to be thin, and some are born to be thick.

Question: How about drinking a glass of cream at night?

Answer: If I am hungry at any time, any food which appeals to me I take, and whether it is a glass of milk or a Welsh rarebit it is not only palatable and digestible, but good nourishment. The Chicago Tribune this morning rather indicated that I was in the habit of taking a rarebit at twelve o'clock every night. That is not true. Perhaps, three or four or five times a year, when I have been occupied during the day and have missed the opportunity of taking meals and especially after a lecture, I may feel a desire to take some food, and oftentimes a Welsh rarebit appeals to me.

Question: Do you eat an entire one?

Answer: It depends. It depends entirely upon the size of the rarebit; it depends somewhat upon the size of my hunger.

Question: How can a mother cook to satisfy the varying appetites of nine children?

Answer: I am glad that question has been asked because the teaching of Fletcherism has simplified the domestic problem more than anything else. With a good appetite almost any food which is palatable will be agreeable to anybody. It is only the dyspeptic person who is overfed that is hard to please.

Question: How about taking meat?

Answer: The taste for meat entirely disappears. I studied the subject very carefully and found red meat was best fitted for the body, but now I never take meat. The appetite for it was sloughed off, and I also know from my work in the laboratory that it is almost impossible to take meat without getting too much nitrogen, without getting autointoxication and uric acid symptoms, and we all know what uric acid means. They are at the root of the disabilities from which we suffer. Rheumatism, gout and Bright's disease, which are so common, are accompanied by uric acid, and the taking of meat immediately brings about the excretion of uric acid. If you get rid of meat, as you can in the household simply by the result of Fletcherizing, you will get rid of cockroaches, and a whole lot of other disagreeable things.

Question: How about tea and coffee?

Answer: We want to learn the truth about certain things surrounding us, and I have put these things into two categories. One I call the profitable felicities, and the other the unprofitable indulgencies. Among the profitable felicities are pure air, pure water, profound sleep, and food in the exact amount required by the body. These alone are not enough. You must cultivate in connection with them not only the mental, but the dental, the material, the immaterial, all of the attributes of life; optimistic thought, love, faith, hope, and charity. Forethought must be separated from any suspicion or any element of fear thought. We have the profitable felicities in pure air, pure water, profound sleep, and food in the exact amount, and in love, faith, hope, charity, and forethought minus fear thought, and minus apprehension. Those are on the credit side of the ledger.

As unprofitable indulgences on this side we have tea and coffee, tobacco and alcohol. Food in any excess means worry, pessimism, depressive emotions, depreciation, fear thought, and above all indifference, which is death. Cut these things out. They are not necessary. Cut them out of your habits. All those on this side are destructive of those on the credit side and cost more than they come to.

Now, ladies and gentlemen, it gives me great pleasure to thank you again, and to retire in order to give Dr. Evans an opportunity to say a word. (Applause.)

THEN AND NOW.

BY JAMES TRUMAN, D. D. S., PHILADELPHIA, PA.

[Continued from the January DENTAL REVIEW.]

Recently there were held two remarkable exhibits demonstrating the *Now* as an objective lesson and not often encountered by the most satiated convention habitué. The one a combination presented by a large majority of those engaged in the manufacture of dental supplies, and the other by one of the best known houses engaged in the same work. The first was held at the Bellevue-Stratford Hotel, Philadelphia, and the other at the S. S. White dental manufacturing rooms, Chestnut and Twelfth streets, in the same city. The first exhibit was carefully planned and had much of novelty and excellence to delight the artistic and mechanical mind. It was something that the overworked dentist of 1837 could never have dreamed possible and it exhibited thoroughly the marks of progress in the first decade of the twentieth century. This exhibit was all this and more, but the latter, that of the S. S. White Company, aspired to be what this was not, an educational lesson to dentists.

The writer was present at both by invitation and had in accepting, no other anticipation than the renewal of oft-repeated personal experiences. Both exceeded expectations from a commercial standpoint, but that at Twelfth and Chestnut streets was an inspiration. It was beautiful and artistic in conception, but above all this, valuable as it was, were the lessons sought to be conveyed to the recent graduate.

Starting with the educational idea, there stood a large case. There was shown the materials that entered into the manufacture of porcelain teeth. From feldspar to the putty mass composing the body and the enamels, to the combined materials that entered into the manufacture of porcelain teeth, from this initial stage, to the material as it emerges from the moulds and then trimmed of superfluous material, subjected to a drying process (biscuiting) and from there to the furnace, and finally emerging from this intense heat, have become the teeth, the admiration of the world. The actual process that has produced this result is not shown here, nor could it be, but a story is told by the objective results worthy of study.

From the tooth section the observer passes by the case containing the objective history of the mallet. Here were types of all that had ever been invented, leading up to the present electrical and mechanical mallets, a lesson of progress in itself. How few appreciate now the labors of the inventive mind to reach present perfection in these instruments.

Then appeared in view the specimens of Japanese dentistry of the past. The barbaric ideas there exhibited gave a vivid picture of a brutality of a past age among that intelligent people, but the writer was informed that the Japan of today has risen above all this and promises, in the not far distant future, to lead the world in dentistry as it aims to do in most other things. There can be no monopoly of mental growth and now that the moribund nations are awakening it behooves those already in the full glare of the twentieth century to be alert that the paralyzed civilizations be not in time the leaders and disturbers of the world's old and cherished ideas.

The beautiful instruments made by this house are known the world over, but they were there to delight the trained eye. It was deeply interesting to one who has essayed imperfectly to temper instruments to note the amount of pressure forceps and cutting pliers would stand without fracture, the edge of the latter remaining without the slightest injury to its delicate cutting property. These were placed under two hundred pounds pressure, a force sufficient to bring the blades together without the slightest strain upon the steel or defacement of the cutting edge. It was a marvel in tempering.

Who has not felt his temper rise when attempting to punch a hole in metal with the ordinary plate punch? With the wiggling of the instrument it is finally loosened with an internal anathema. With the modern instrument loosening itself with every pressure of the hands, cutting holes becomes a pleasure. The mechanicians of this company have been for three years trying to solve this problem and have only now succeeded.

Passing by the electrical devices, the electrical furnace for baking porcelain inlays, with every wire carefully inspected, the observer comes to the gold. This is always attractive, but to the dentist it means much more than the fact that this is the royal metal of the world, not excepting platinum, which is a close relative in value. The gold exhibit at the Bellevue-Stratford was beautiful, but, to the writer, that of the S. S. White Company was more instructive, without lacking in artistic taste. All the forms of gold used in operative and mechanical work from foil and plate to wire were there enclosed in a large case. Who that has gone through the successive steps from the first decades of the nineteenth century, but would stand in front of this exhibit with mingled feelings of regret and awe, regret that the fathers were not able to know the possibilities of their profession and awe at the amount of money invested in the work of preparation for use in dentistry. That the cost of this may be better understood and authoritatively stated, the writer quotes from a private letter explanatory of the President's statement given him in person. He says, "It is not our habit to tell the general run of our friends, what we are doing in any particular line, but so long as I have mentioned to you that the company was using about *$7,000 worth of gold bullion every working day,* I have now had the actual figures compiled and will state that from October, 1909, to September 30, 1910 (just one year), *we purchased gold bullion of the United States government to the extent of $2,123,299.20, which divided by 300 working days gives $7,077.66."* This does not include scrap purchased, nor does it include platinum, for, the President adds, *"You could add to this nearly $3,000 per working day for platinum."* (Italics are the writer's.)

Are not these statements of facts eloquent of the progress made in dentistry the past one hundred years? Think, if you can, intelligent reader, of this vast amount entering, in various forms, the mouths of the people of the world. Does it not show more than mere words that the civilizations of the world have come to accept dentistry at its own valuation and the people are being educated to recognize it as one of the great altruistic professions of the age?

When it is considered that this vast sum, staggering belief as it does, is confined, as stated, to one house of the many now dotting the world's life, and all dealing largely in the royal metals, the mind is lost in a maze of wonder and speculation as to the possible outcome of the future. To these must be added the gold manufactured by gold-beaters and sent broadcast to individuals.

It is not surprising that this exhibit was the inspiring force driving the writer to this article. It carried him back to the earlier days described in previous paragraphs. To the days, when as a boy, he aided his father occasionally in the selection of teeth from Samuel W. Stockton's tin boxes, for, at that time, the teeth were kept for sale in this manner, each kind separated as to form, size and color, but dentists who now can select from cards, cannot realize the labor it was then to select a set of teeth. Fortunately, perhaps, it was, that full sets of single teeth were not often used. If the anterior teeth were selected, the posterior were usually made in the laboratory. It was from this establishment of his near relative, Samuel W. Stockton, graduated Samuel S. White, the founder of this house. It was with Stockton he acquired his knowledge of ceramics. The writer became quite well acquainted with Samuel W. Stockton in a business way, but the profession knew little of him and his history seems lost. This is to be regretted, for no man did more to elevate prosthetic dentistry when it most needed help, than did this original man.

Samuel S. White and his brother James opened a very modest office or store for the sale of porcelain teeth on a quiet street, quite far from the busy marts of trade. It was an experiment, but its success warranted another move on a more active street, but still in a building not much larger. From there to the large building on Arch street, too large for the Jones, White and McCurdy firm, as now developed. The upper floors held the Philadelphia College of Dental Surgery, the first dental school in Philadelphia, and which gave to the present writer the title of Doctor of Dental Surgery. From this the company moved to the present magnificent quarters on Chestnut street, where the Samuel S. White establishment has remained for many years. The advances made by this house have progressed equally with the development of dentistry from the period first mentioned. From 1844 it has made no backward step, but has sounded the inspiring note of progress, with the equally energetic life of the profession.

The writer regards it as one of his special privileges that, accompanied by Mr. William H. Gilbert, president, he has traversed the acres of shops in Staten Island, now greatly extended, through the large factory in Frankford, suburb of Philadelphia, and the nine-storied building on Twelfth street, devoted to the manufacture of porcelain teeth. The sight in all these great establishments is inspiring and marks the progress of this peculiar work in the twentieth century.

The immense numbers of porcelain teeth manufactured in this city by the S. S. White Company, by H. D. Justi & Son and minor firms here and in different cities on this continent, together with those manufactured in Germany, England, France and possibly elsewhere, leaves the mind overwhelmed with the magnitude of the output.

While the writer's pen has been mainly devoted to the development of the mechanical side of dentistry, he is not unmindful that this only in part constitutes dentistry. While this is true, it must be said that there is no profession, not even in all the specialties of medicine, so dependent on the mechanical side as is dental surgery. Without it we would be relegated to the first decade of the nineteenth century, with it, there is no mind with sufficient prophetic ken to gauge the future.

The professional side has advanced at a pace known to all men. Colleges have sprung up all over the civilized world devoted to advanced instruction in all relating thereto. The humble efforts of Chapin A. Harris and his colleagues in 1839 has borne rich fruit to the enlightenment of the nations. The student of the better colleges of dentistry is educated today to know more than was dreamed of by the graduate in medicine fifty years in the past. He must be conversant with all the scientific branches regarded as foundation studies in medicine, chemistry, materia medica, anatomy, bacteriology, histology, surgery, etc., yet he has not the M. D. degree and will not have it until the time comes when the world may demand that all practitioners of the healing art must possess it. That this will come, who can doubt?

Dentistry has been obliged to pass through a running fire of criticism from the medical profession ever since it emerged from the barber period. During that time it was satisfied to regard the dentist with about as much consideration as the man with the lather. When the time came that men of culture entered the ranks of the "tooth-pullers," as they were called, then began a so-called higher criticism. It was first arsenic and, if these critics were to be believed, dentists were about to poison the entire human family, then the rubber base for artificial teeth, performing a similar service through the mercury contained, or supposed to be contained, in the coloring substance used, then it was the "partial culture." We now have something entirely new from the pen of J. C. Baylis, M. D., Ph. D., in the "Independent," who attempts to show how artificial teeth are shortening human life. Listen to him:

"That a great multitude is killed every year in the excesses rendered possible by artificial dentition cannot be doubted."

"What hygienic medicine, and surgery together, have accomplished to increase normal longevity, is effectually neutralized by the expedients of modern dentistry."

Our critic has negelcted to add that the world, male and female, has not come to recognize the Rev. John Wesley's dictum, "That cleanliness is next to Godliness," as an appendix to the ten commandments, and that if he is prepared to turn his microscopic objective on the unwashed secretions of the human mouth, he will there find pathological bacteria in sufficient quantity to destroy the gastric function, and all other healthy normal functions of the human organism.

There can be no objection, however, to Dr. Baylis personally exercising his gums during the closing period of life, but if the human family desire comfort and health they had better not follow his advice.

It remains true that whenever medical men undertake to criticise dentistry, they invariably accentuate their own ignorance of the subject.

The writer is approaching the middle of his ninth decade. For years he has masticated his food on artificial teeth, leaving the animal part of it to the more carnivorous members of the human family. He does not know any practical difference between these porcelains and the original natural. If there is any difference it is in favor of the artificial, and daily he has reason to rise up and thank the skilled prosthetic worker (not himself) for the preservation from all the ills of imperfect mastication.

We may write in a self-congratulatory manner of the standing of the dental profession in this decade of the twentieth century, but when we come to analyze our knowledge we feel that we, like all sister professions, lack much in individual acquirement. Today the artistic temperament is constantly shocked by gold crowns in mouths in full view of every passer-by. If this were confined to the illiterate, while shocking there, it might be tolerated, but dentists are to be found willing to gratify a barbarous taste in some of the higher walks of life. The writer holds this to be not only discreditable to the profession, but should be frowned upon by every practitioner as pure empiricism.

How many are careful in the insertion of crowns and bridge work, that all the preliminary possible pathological conditions are cared for. Dr. Broomell in describing some microscopic studies of the resultant effect of masses of gold in contact with tooth tissues, says: "Among the marked effects produced are hyperemia of the pulp, dry gangrene of the pulp, calcification of the pulp tissue, sclerosis of the blood vessels of the pulp, atrophy of the pulp, pulp nodules, secondary dentin, expansion of the dentinal tubuli, etc." Whether the last statement has been fully demonstrated may remain an open question, but the general facts stated do not admit of a doubt. Nothing, however, is said in this quotation in regard to the pathological conditions almost certain to follow through the extra and serious strain placed upon the peridental membrane, or, in the case of crowns, by constantly impinging on this delicate tissue, causing degeneration and eventual loss of the teeth. These are defects in practice that time, it is hoped, will change, but at present our profession needs to combine the mechanical with pathological knowledge to make it worthy of the full confidence of the people, who, in the last analysis, will be the judges and contemners of all good and bad work.

Dr. H. C. Register in an able paper recently published on "Crowns and Bridge, With Reference to Fundamentals" has these pertinent remarks to make in closing that should find a lodgment in the minds of all who attempt this practice. "Upon continual sterilization of the tissue depends success or failure. It must be realized that diseased teeth require to be treated as such, treated from the standpoint of the surgeon or physician, not fixed by the mechanic." It might be added that a lack of knowledge or neglect of known pathological sequellae, in the insertion of these fixtures, become a professional crime.

The dentistry of a hundred years has been, in part, reviewed. In considering it as a whole, it furnishes a satisfactory record of progress, in detail it is marvelous. Every step has meant great mental and physical labor. Mistakes have been but the stepping-stones to greater perfection. The future must show increased efforts for original work. Our literary exhibit in our journals is worthy of special praise, but we need more of not what individuals *think,* but what they *know,* not the quotation of authority, valuable as this may be, but the reason for the faith shown on the printed page.

We have no prophets among us to foretell the future in our profession, but whatever it may be, the writer hopes that ere the twenty-first century opens up its first decade, that the then leaders of professional dental thought and practice will have established within the boundaries of our calling a name worthy of its great and ever increasing altruistic duties. Our nomenclature was the outgrowth of narrow conceptions of practice during the period mentioned in the earlier paragraphs of this review.

In 1839 Baltimore College of Dental Surgery established the D. D. S.—doctor of dental surgery—as the proper title of all dental college men. It has outgrown its usefulness as an indicator of acquired knowledge and certainly is unworthy the advanced standard of the period. Many years back, before alluded to, a distinguished medical writer and professor, sarcastically stated that the D. D. S. was a "badge of partial culture," and he was correct, but not as he intended should be understood. It was partial because the title carried with it the idea that the work was confined to the teeth alone. The root of the word dentist indicates this, and, when adopted, it signified correctly the status of the graduate. He was expected to work on the teeth and paid little or no attention to surrounding parts. Now the domain of the so-called dentist is the oral cavity and all the tissues that enter into the formation of the maxillary superior and inferior bones. Every possible pathological condition must enter into the curriculum of the modern dentist. Garretson sounded his earnest call for something higher in dentistry and worked strenuously for the training of surgeons fitted to perform all necessary operations of the mouth and jaws. In this he rendered a service to dentistry which has never been adequately appreciated, but it has sounded throughout the profession in spite of apathy and opposition in medical ranks and today oral surgeons are a necessity in all well regulated hospitals. With this fact in view, why adhere to antiquated titles?

Magitot named dentistry long before he died, stomatology. It is a representative name that should be embraced by all convocations of dentists, as covering the entire work of our calling, exclusive of surgery, which necessarily includes more than the oral cavity and its immediate surroundings. There seems to be a growing disposition to laugh down this term, but it cannot be destroyed by opposition, however potent this may temporarily be. The time must come when all practitioners of the healing art will be required by legal enactment to have the M. D. degree. When that arrives then stomatology will be accepted as other specialties in medicine now are, and the badge of partial culture, it might be added partial practice, will live no longer. When that time comes dentists will not be subjected to the criticism of ignorant or deluded medical men.

Here the writer lays down his pen and parts with his review, but, at the same time, trusting that the historian of the next century may be able to show a standard that will make the experiences of the decades, from 1810 to 1910, dwindle in value beyond comparison with that then accomplished. Every hundred years must exhibit an accretion of knowledge and skill, if the human mind is to advance through the limitless ages of the future.

THE VULCANITE PLATE.

BY DR. MARK G. M'ELHINNEY, OTTAWA, CANADA.

It seems to be according to some unstated natural law that all things, animate and inanimate, when placed together, ultimately resolve themselves into castes and classes. A dead level of equality seems impossible. Given time enough and whether it be men or dogs, materials or occupations, sports or articles of faith, they will separate into well defined classes, the one aristocratic, the other plebeian.

The strangest feature about this separation is that it does not seem to be based upon utility, beauty or inherent moral excellence, but rather upon the merest accident. This is all that it can be called, although, as scientific men, we know that in the scientific aspect of nature, there is no such thing as accident.

It is perhaps because the equality of men and things and occupations is impossible that equality has ever been the utopia of the dreamer, the idealist and the doctrinaire.

In our own profession we have come to regard certain operations and materials as being more reputable than certain others and to pride ourselves upon the accomplishment of some and the partial avoidance of others.

This attitude toward certain operations and materials has an important influence upon the results since we are likely to do well those things which we take pride in doing and do but indifferently those things which do not appeal to us.

Let us for a while forsake the clouds beyond which shine the stars of our professional endeavors and come down to earth, down to the so-called pariah of dental materials, vulcanite.

Vulcanite, the friend of the masses, the material which permits the otherwise toothless millions to smile and speak and eat in a manner human and not as a shrunken, mumbling horde of edentulous creatures.

It is plain that for years past, now, and for a long time to come, the vulcanite plate was, is and must be one of the main lines of our profession and we must not be too hasty in relegating it to the discards.

After all, the thing to be desired is the result and the contemplation of the result should purge our minds of all thought of caste in the matter of materials. Who can say that the highest results, in utility, expression, adaptation and general artistic qualities cannot be attained with vulcanite as a base?

In addition to these claims is the fact that the vulcanite plate is within reach of the many who need it the most and the case is too strong to be easily overset.

For the few whose means admit the use of the more expensive bases, such should always be supplied because of many minor points of superiority, but, for the many, vulcanite is the only available material and we should see that the material is made to serve to its utmost excellence.

While in some cases the making of vulcanite plates has lately been carried to a high point, it must be admitted that as a rule, such work receives the minimum of care and attention with the result that the average vulcanite plate of today is little less than a disgrace and a blot on our professional skill.

Much of the fault lies at the door of the cheap jack who tries to make a comparatively cheap product cheaper still by his miserable incompetence.

There is no valid reason why a vulcanite plate should not command a fee commensurate with the skill employed and the result obtained. If it fails to do so it is our own fault.

In most practices, before the abolition of indentured students, the vulcanite plate, outside of the impression and the setting up, was the student's domain. Today it falls to an assistant, sometimes competent, often crassly incompetent. Yet, in the eyes of the uninstructed public, vastly in the majority, the vulcanite plate is the measure of professional ability.

The preparation of the mouth is the first consideration as its condition has an important bearing on the possibilities.

Extraction should be clean, and laceration avoided as much as possible. The tissues should be sufficiently healed and immediate absorption completed.

Plaster of paris is the most reliable material for impressions and it should be used at a consistency which will not press any soft tissue out of place. In mouths of unequal density, the impression should be relieved on high, hard spots or the plate will rock. When the model is made it should be trimmed neatly and evenly and handled carefully to preserve its surface. No good work ever comes from rough, battered models or from the workman who is ankle and elbow deep in plaster. It might be said that the first requirement for good work is a clean laboratory.

The choice of the teeth is a difficult matter and in this the fault often lies with the patient. Most patients will not allow us to use the teeth that really suit the case. This is most exasperaing because it destroys the case as an artistic production.

Most patients wish for teeth that are too small and too light, forgetting that age and carelessness darken the teeth and cause recession of the gums. Moreover, they wish the teeth as regular as pickets on a fence. Many and many a time is the dentist completely disgusted with the vanity and unreasoning stubbornness of the patient who finally wins out triumphantly with a set of characterless bits of white porcelain in a frame of old wash leather. In such cases we are indeed helpless and can but charge the patient to tell no man who made the teeth.

Some operators set up the teeth in the mouth and others use an articulator. At any rate the trial plates should be fitted in the mouth before waxing up. Either method is good if the result is attained. Careless waxing means loose and displaced teeth and the waxed model should approximate the finished product as closely as possible.

Cleaning the moulds and packing can be done either by the wet or by the dry process. The dry process is cleaner, but the wet is safer. Cleanliness is the main requirement in packing and the proper distribution of the red and the pink rubbers the next.

In thick cases, the interposition of layers of pink rubber will prevent porosity. The moulds should be hot and the rubber suitably cut and placed on a dinner plate, kept hot over a pan of water.

After the plate is vulcanized it should be cooled slowly to prevent warping, and then carefully trimmed and finished.

Some prefer to simulate the rugae on the roof of the mouth. While the rugae assist the tongue in mastication, a plate so finished is difficult to keep clean. This is a matter for indivdual judgment.

In thus rapidly sketching the making of a vulcanite plate, the writer is not so foolish as to think that he is giving information. He is but pointing out that, in the race for progress, a useful and indispensible part of our work is apparently being neglected to the detriment of our profession.

To the specialist or the fortunate few, whose clientele can afford the latest and probably best, these remarks do not apply, but to the general practitioner, vulcanite must remain the most important base for plates and he must make the most of this material.

Good vulcanite work is not incompatible with skill along other lines. The dentist who cannot make a good vulcanite plate cannot make a good gold one because the one is the stepping-stone to the other.

In the words of a popular song, "We have all gone wrong" at times. Sometimes it was our fault, often the fault of patients who would not be advised for their own good, but, it is never too late to take stock and see where we can improve.

DO WE DO OUR BEST?

BY ASA FEE, D. D. S., CHICAGO.

We read in our dental journals and see actual demonstrations of the wonderfully perfect work of D. C. N. Johnson in operative dentistry; of Dr. Truman W. Brophy in oral surgery; of Dr. H. J. Goslee in crown and bridge work; of Dr. J. P. Buckley in the asepsis and treatment of the teeth; but do we do our best in the execution of every dental or laboratory operation that comes to us to perform?

Do we prepare the teeth correctly for every crown, gold or other, that we place in the mouths of our patients; or do we grind the tooth just as little as possible; use thin gold; leave the crowns impinging on the gingival tissues?

Do we always treat the roots of every tooth in or on which we as carefully as we do the cavities in which we intend to place gold; or do we say to ourselves, any kind of a *hole* will hold amalgam; give the cavity a "lick and a promise" and later see the failure of our fillings?

Do we prepare every cavity in which we intend to place an inlay mechanically perfect, or do we patch up the cavity with cement and then expect the later cement to make tooth and inlay one—as good as the perfect tooth?

Do we always treat the roots of every tooth in or on which we intend to place permanent work in the very best manner, so far as we know; or do we skip the disto-buccal root of the upper first molar and pat ourselves on the back and say we have saved time, and the patient will never know it; or do we pump in any one of the half dozen so-called pulp mummifiers or putrescent canal cures, finish the work and let the patient suffer from the subsequent abscess?

Do we keep our bodies in such condition that we are capable of doing the best work? Are our nerves steady, our brains clear? If they are not it is our own fault. We should live right.

Be temperate in every way and you will be a MAN.

These remarks are all modified by existing conditions.

You can nearly always prepare the tooth or root correctly for the crown—if you will. You can prepare nearly all cavities correctly —if you will. You can treat nearly all canals properly—if you will.

You can be a man if you will, and you must be a man before you can be a dentist in the fullest sense of the word.

To sum up: Are we doing honestly by our patients and living honestly with ourselves; or, are we fooling our patients and degrading ourselves? Think this over and see if *you* are doing *your best.*

A COMMENTARY UPON THE ESTABLISHMENT OF FREE DENTAL CLINICS FOR THE POOR.*

BY ELLIOTT R. CARPENTER, D. D. S., CHICAGO.

The establishment by the dental profession of such clinics not connected with established institutions, already carrying on a similar work of relief in other departments of medicine would entail an expense quite out of proportion to the results to be achieved. I would therefore recommend that the various hospitals with established clinics be approached with a proposition looking forward to the establishment of the department of dentistry for the care of the teeth of children of school age who are unable to secure the services of a competent dentist and that such department be maintained at the expense of the dental societies, the appointment to these positions being upon recommendation of the officers, and a committee of the societies named for this purpose. In order to make such a department practical and of the greatest value to those whom it is desirous to reach, the following points should be kept in mind.

First, that the attendance of children must be voluntary.

Second, the attention of the parents to the necessity for this work must be drawn by a competent and recognized authority. At the present time there are inspectors, and nurses maintained by the department of health, and the Board of Education, for the inspection of the public schols, whose duty it is to determine the presence of contagious diseases, the condition of nutrition and the eyes, and to recommend to the parents of such children the manner by which these defects may be remedied.

In view of the well recognized interdependance of constitutional disturbances, and the condition of the teeth, would it not be well that these inspectors make a report of the condition of the teeth of the children, and to make similar recommendation to the parents, calling their attention to the necessity of removing these defects, and also designating in such cases where the means of the parents do not allow of proper attention by their dentist, the place where such services can be obtained.

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*Read before the Odontological Society of Chicago.

By the use of established hospitals and clinics the difficulty attendant upon the establishment of an independent organization would be largely overcome.

Established institutions already have the necessary organization for the proper conduct of such a department.

Its presence in such a hospital would be of great value in determining the relationship existing between other diseases and the teeth, a subject which up to the present time has not been sufficiently worked out. This is a point of great scientific value! And for this reason I believe that such a department would be welcome by most of the existing institutions.

THE PRESERVATION OF LOOSE TEETH.*

BY F. E. ROACH, D. D. S., CHICAGO.

The question of *when* a loose tooth may be retained in the mouth, made comfortable and useful to the wearer is often difficult for the dentist of ripened experience to decide, and for the younger members of the profession it is one of the most common sources of error.

To my mind there is no more perplexing question that arises in practice and none more frequent than that of deciding whether or not to extract this, that or the other old loose tooth. We have all seen mistakes made both in the preservation and in the extraction of this class of teeth.

The longer I am in practice the greater value I place upon a human tooth. The loss of one single tooth in many instances means a life of misery for the loser. A single tooth often stands between years of comfort and a lifetime of discomfort and suffering. I recall several cases where one quite loose tooth standing alone within a long span between other teeth has been the means of avoidance of a plate for a great many years, and while plates in the majority of cases may be worn with reasonable satisfaction there are certain conditions that practically preclude their employment at all. We have all seen cases of extreme susceptibility to nausea that renders the wearing of plates exceedingly uncomfortable. And then there are mouths that are so hard, dry and flat that it is quite impossible to obtain secure retention and, as a consequence plates are worn with indifferent results.

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*Read before the Odontological Society of Chicago, October, 1910.

It is not necessary to offer argument against the plate, or to compare the plate with the natural teeth or a well-constucted bridge placed under favorable conditions. With all our boasted skill, inventive ingenuity and scientific attainments we have not yet improved upon the natural teeth in many respects. And while we are justified to a degree in feeling proud of our ability to supply artificial dentures let us not become vainglorious at the expense of our patients. It is indeed very fortunate for humanity that we can supply a reasonably comfortable artificial substitute in most cases, but this ability should not embolden us to a disregard for the natural organs and make us careless and extravagant in their destruction. Our aim at all times should be to preserve the natural teeth, extending their life and usefulness as long as posible. While a great many of our patients exhibit an indifference in the matter there are on the other hand a large number of people who will appreciate our efforts in this direction and we should endeavor to serve them accordingly. And yet this very same class of appreciative people are the ones that are likely to get us into trouble if we are not very careful. They will try to persuade us into saving teeth that should be extracted and too often we are influenced in this way to take a chance on some tooth when it is against our best judgment. And so this question of pleasing our patient is a factor to be reckoned with and must be held accountable for *some* of our mistakes.

Admitting my own failures and believing that most of us have made mistakes both in extracting and in retaining loose teeth I maintain that we should have some guide whereby we may be reasonably sure of the success or failure of either procedure.

Let us consider for a moment the common causes of loosened teeth. Divided into two great classes—Traumatic and Pathologic—we find that pyorrhea alveolaris, alveolar abscess, mal-occlusion, accidents, faulty crowns, bridges and partial plates are the prevailing causes.

One or more of these conditions may be the primary cause of the other. For instance pyorrhea may be the result of an improperly constructed crown or bridge, or may be due to malocclusion. On the other hand mal-occlusion may result from faulty bridges or the impinging of a plate, or we may find any one or all of these influences bearing on a tooth at the same time.

Having determined the cause or causes of the loosening of a tooth, the question that naturally arises is what are the chances for recovery and what means shall be employed to bring about a normal condition or to establish a healthful state with the promise of the longest period of service.

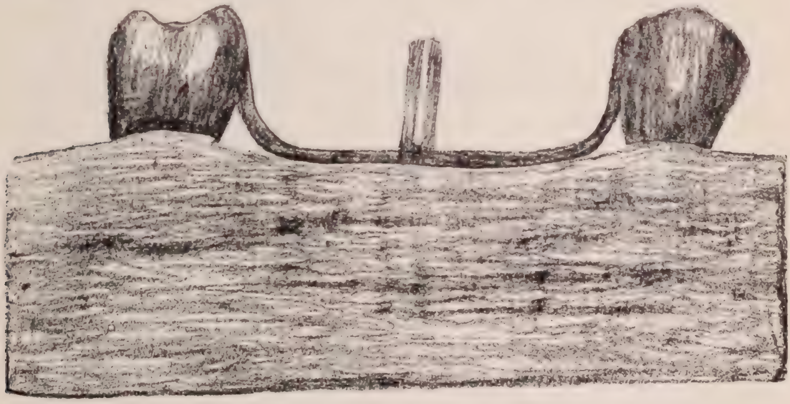
First of all the cause must be removed and such medication as may be indicated applied, after which mechanical fixation is established. In most cases the successful treatment of loosened teeth depends upon the detection and removal of the cause, but we are frequently confronted with conditions that require some means of rigidly securing these teeth in their sockets in order that our treatment may be effective.

It is a well known fact that in the treatment of pyorrhea in many cases it is absolutely necessary to resort to some form of mechanical fixation before a cure can be effected. And while mechanical measures are often indispensable they should be considered only as supplemental to proper treatment. Too often we see teeth serving as abutments or piers in bridges that are a menace rather than a benefit to the wearer. Though a strong advocate of the fixed bridge under its indications and properly constructed I am nevertheless as strongly opposed to its abuse. The fixed bridge judiciously placed and carefully constructed is one of our best aids in the preservation of loose teeth, but its indiscriminate employment has resulted in the loosening and loss of more teeth than have been tightened and saved by means of it. If more attention were given to the study of cases demanding bridges with reference to the length of span, position and condition of abutments and piers, direction and amount of stress, the relative value of the various forms of removable appliances and the details of construction, especially as to peripheral continuity of crown fitting to the natural teeth and occlusion there would be much less damage occurring from their use. As stated above the fixed bridge may be used to good advantage in preserving loosened teeth, but it has its limitations; a fact which seems to be ignored by some operators. No tooth that is not supported by some alveolar process should be used for either an abutment or pier in bridge construction. No tooth that has become loose from any cause that does not show favorable recuperative power under treatment should be made a part of the foundation of a bridge. No loose tooth should be used as an abutment for a bridge unless the opposite end be extended so as to include several teeth thereby overcoming leverage. Loose teeth may be successfully employed as a pier when those of like conditions would fail utterly as abutments. Teeth that would stand a rootwise stress when supported on each side by rigid abutments would often fail if subjected to a lateral strain, and for that reason may be used at times very advantageously as piers, especially on anterior roots connected up with strong posterior abutments.

What has been said of the destructive tendencies of the fixed bridge may also be said of the partial plate, and my position on this subject I believe is too well known to need mention at this time, but suffice to say that I do not believe that there are many instances justifying the construction of partial plates that impinge the lingual surfaces of the remaining natural teeth. The partial plate like the fixed bridge has been the means of loosening and destroying a great many teeth, but on the other hand it may be employed to good advantage in saving loose teeth when properly applied.

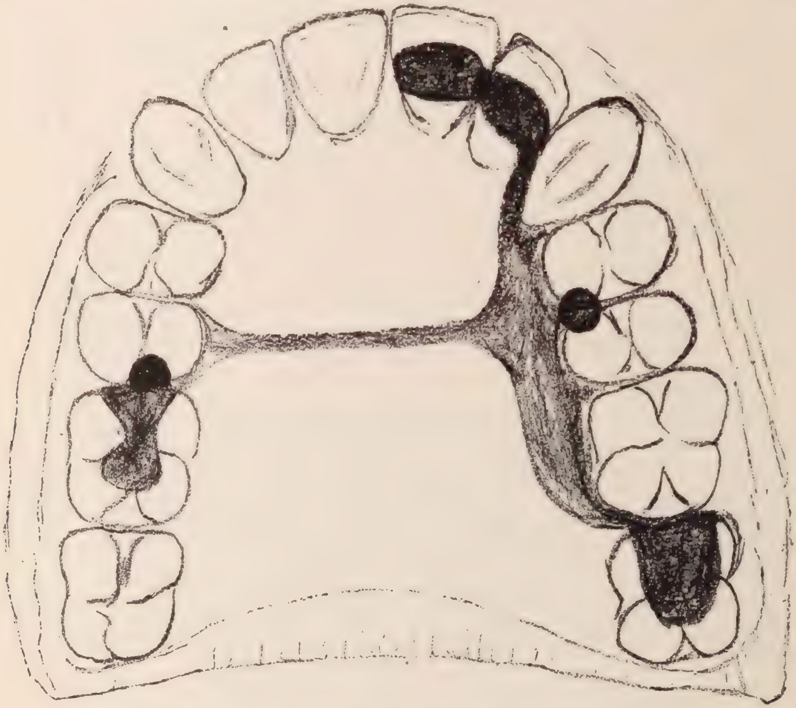
It is advisable when making partial plates to minimize the number of teeth to be supplied thereby reducing the leverage as much as possible. The teeth that are to be put upon a plate should be placed first for masticating purposes and secondly for the cosmetic effect, and in no case should we employ means that favor either one at the expense of the other. In other words we should adopt procedures that will equalize the two requirements. We often see too many teeth put upon partial plates in the effort to supply substitutes for all the teeth that have been lost, when half the number would fulfill the cosmetic requirements, and at the same time afford a more satisfactory masticating surface. In my opinion it is better to have one tooth doing good service than to have several that are worn most of the time in the pocket or the bureau drawer. This applies more especially to extension cases where molars and bicuspids are missing. As an illustration we will take a case where all the teeth are out, posterior to the cuspids in the upper jaw, and the remaining teeth are affected with pyorrhea or otherwise loosened. If a suction plate is to be made it should cover as large an area as possible and full complement of teeth may be supplied, but if some form of mechanical attachment is to be made to the cuspids the number of teeth and size of the plate must be reduced to the minimum.

A review of the various forms of splints that have been shown from time to time for retaining loose teeth would be beyond the scope of this paper, but in conclusion I wish to call your attention to a bar splint that I have been using for about five years with such success that I believe I am justified in bringing it to your notice again with a very strong recommendation of its value. It has passed the experimental stage and is now a well established system of practice in dealing with some of the more complicated cases of loose teeth.



In explaining this bar splint I will describe two typical cases where it has been successfully employed. Case 1—Lady about 40; upper jaw. Conditions of left side were, viz.: Bicuspids and first molar mising, cuspid required a crown, molar had mesio-occlusal cavity, central, lateral and cuspid quite loose from pyorrhea. On the right side the second bicuspid was missing and first bicuspid had a disto-occlusal cavity. Treatment—Pulps were removed from central, lateral, cuspid and molar, on left, gold inlays with dowels were made for central, lateral and molar, and coping fitted to root of cuspid.

Bite and impression were taken and articulated model of investment compound secured. A 12-gauge, half-round clasp gold wire was fitted to summit of ridge from inlay in molar to inlay in lateral incisor pasing over the coping on cuspid. The inlays, cope and half round wire were then united with solder after which a wax pattern saddle was fitted over wire and ridge and casting of gold-platinum alloy made. A piece of the same wire is now fitted to and across the palate to the space on opposite side of arch where it is anchored to the inlay in bicuspid with a Roach attachment. The other end being soldered to saddle on left side, with saddle in position on model, the teeth are selected and fitted to thir respective places, allowing space between bicuspids for the perpendicular split pin which is made by doubling a 14-gauge half-round clasp wire upon itself and soldering to the splint bar which was fitted to the ridge. A gold or platinum tube is fitted to this split pin, a hole cut in saddle to correspond so that it can be set back on model and tube waxed to it, they are now



removed together, invested and soldered after which the saddle is re-adjusted to the model, teeth waxed on and vulcanized.

Case 2—Man about 60; lower jaw. Conditions viz.: Teeth all out excepting cuspids and first bicuspids on each side; bicuspids quite loose and cuspids somewhat so. Treatment—All teeth were devitalized, crowns made for them and soldered together. A splint bar was fitted between cuspids and soldered to them. A saddle was made and fitted over this bar as described above and connected to saddles which were made for carrying the posterior teeth on each side by a 12-gauge round clasp gold wire, Roach attachments were used on bicuspids as a means of anchorage.

These two cases are only two of a number of cases that have been treated in a similar way, but will serve to illustrate the application of the *splint bar* and the class of cases for which it is indicated. And when used under its indications it embodies the following advantages: Affords a rigid support for the lame teeth, is reasonably sanitary, offers a permanently solid support for the teeth that are supplied, easily constructed, meets all the cosmetic requirements, and last but not least, yields the greatst possible comfort to the patient.

MISTAKES I HAVE MADE.*

BY DR. C. L. SMITH, ST. CHARLES, ILL.

The title of this paper would indicate that I was about to make a confession of ignorance, carelessness, or lack of proper instruction to begin the practice of dentistry. As much as I dislike to admit it, I must plead guilty to all three charges. Combined with that I will try to excuse myself by thinking that the methods of operating have changed or advanced so much in the past fifteen years that there is hardly anything that we do now as I tried to do when I began practicing. I presume I ought to attempt some additional excuses to have enough to cover all the blunders I have made, for as I go over the list I cannot find a single thing that has not been changed, most of them to nearly the opposite, so in enumerating a few of the worst ones—only a few remember, for this whole meeting would not give me time even to mention the entire list—it will not be necessary to tell how I do now, just tell what I have done. They were the mistakes, and I hope you can stretch your imagination enough to think that I do the other way now.

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*Read before the Northern Illinois Dental Society October, 1910.

Probably some of the older members here, those who have practiced for thirty years could fifteen years ago have told of just as many mistakes that they made fifteen years before that and those in practice for forty-five or fifty years, could now be writing their third paper on "mistakes they have made in the past fifteen years."

If we have a reasonably keen sense of observation our best and surest way to learn is to watch everything we do for mistakes. I expect to have a longer list in fifteen years from now and they will seem more amusing and less excusable than the present ones, for we are now in the era of greatest and most rapid advancement that dentistry has ever known, and if we are to keep up with the progress we must put ourselves in the class with the legal and medical professions and do more reading and studying and less loafing.

The first mistake I made was the biggest one, but it didn't take many years of practice to get it entirely corrected. I saw the young dentist wearing the latest style and best quality of clothes, driving good horses, owning a launch, and a few diamonds, had an elegantly furnished office which he never entered before 8:30 and always left at 4, so I thought that dentistry was the easiest way in the world to make a lot of money. After practicing for a few years and working many more hours per day and sometimes nights and Sundays and not being able to have any of the luxuries, I was talking to a friend of this dentist and asked how he was doing. The answer, "Why, he don't seem to be doing much," caused me to ask how he kept up such style without working harder. "Oh, he inherited it from his father's estate. He had thousands of acres of rich farm land and Charley was the only child."

I will omit the mistakes made in college as they can mostly be charged up to lack of instruction, but I did not make any as big as the backward student who asked one of the professors what to take the measure of the root for a Richmond crown with. The instructor was tired of such questions and said he usually used a rubber band and Mr. Student tried it, but not as successfully as he tried to devitalize the pulp in a molar by filling the entire cavity with arsenic paste. A classmate came in the room one day all swelled up with his new discovery, and said, "Why buy right angle burs when you can just as well take the temper out of the shank of the straight one and bend it to any angle you want?"

In the first place I started out wrong. I had never had any instruction on the business side of dentistry. If I had spent a year working for what I could get for a good experienced dentist who was also a good business man, it would have been time well spent, and I would have less beautifully engraved stock certificates of gold mines, taking a preceptorship after instead of before the college course. When I purchased my outfit, I left out one of the most important things for a number of years, a good system of keeping an accurate account of every operation. It is an incentive to do your very best in every case and a great many times saves you from being imposed upon by some of your patients. With the record you can turn to it and convince them in a minute, where, without it, you must take their word or possibly lose the patient. With this record, if you are to be successful financially, it is necessary to keep a cash receipt and office expense account. You will be surprised at what a big percentage the expense account is, and with me it increases every year, although it should not, for I ought to be able to increase my fees more than enough to offset the additional cost, but I can not do it. When I used to feel hard up, I tried to economize by using old burs and broaches and worn out instruments. That is the worst possible thing to do for you waste so much time doing inferior work and when finished you haven't the heart to charge what you would have charged for better work in less time and with less pain.

Much injury to patients and a loss to my reputation and pocket book has been caused by a too careless examination of teeth by a casual glance with the mirror and a prod here and there in the pits and fissures and drawing a hooked explorer between the teeth. You cannot make a satisfactory examination of the mouth without first cleaning the teeth, and then carefully exploring the five surfaces of each tooth. That is the only way I know of to get pay for your examination in a country practice. When a person asks to have their teeth examined make an appointment for the cleaning and examination and then you can charge for the time used. If they have been away from the dentist long enough to ask for an examination they will need their teeth cleaned.

It took me several years to learn better than to use a clamp to place the dam on all teeth back of the cuspid. If it wasn't sharp enough I took a stone and sharpened it, and the stiffer it was the better it cut into the tooth or the farther to the process it worked and gave me an excellent view of the tooth, and the patient pyorrhea. Instead of turning the edge of the dam on the anterior teeth I used a ligature and crowded it under the gum as far as possible and tied in a hard knot and left it for an hour or so—it is a most excellent way to start a case of pyorrhea. Many beautiful fillings have been built up and highly polished and when the dam was taken off the patient allowed to close the mouth to find that the articulation had never been thought of. The sharp opposing cusp and the filling too must be ground and repolished.

Proximal alloy fillings inserted without a matrix, and without a cement lining, mixing the alloy soft so it spreads easier is a great time saver a few months later when you want to remove the fillings as it cuts so much easier than one mixed hard and packed thoroughly. Usually you are not troubled to take the filling out for it nearly always leaks enough to decay all around and under and the filling drops out.

If you are afraid to remove all the decay near the pulp for fear of an exposure, just fool yourself into believing that you can disinfect it, and it will die quietly and give you or somebody else a job later on. Likewise deep undercuts, cut with a small bur, that you or nobody else can fill will show up a few months later by the growing discoloration.

When I used to anneal my gold for filling over the alcohol lamp, piece by piece, warming one pellet, possibly annealing the next and fusing the edges of the next I wondered why it sometimes flaked. Now I wonder why it didn't all come out.

Proximo-incisal gold fillings where a part of the lingual enamel plate was cut away and the labial plate left, looked real nice until used and had begun to get battered away and leak so the gold showed through to the front and then off went the labial plate. Solution, gold screws cemented in for anchorage. I don't think I will tell you my mistakes in inlays. That is a secret yet, but they are coming out fast. If my past few years' experience continues much longer I can write a book on the subject, providing I can hold my temper. About 95 per cent of my artificial enamel fillings have been absolute failures in a year or two so far as appearance goes. Most of them preserve the tooth all right, but the surface discolors, and then disintegrates until about as rough as fine sand paper.

When I used to try to fill root canals by smearing the sides with chlora-percha and using large enough guttapercha cone to act as a piston and give it a quick jab, forcing enough compressed air ahead of it to cause the patient to flinch, I thought that it was certainly well filled, when it wasn't half filled, but nature took good care of the most of them and has a big job on her hands yet.

The farther I could put a shell or banded crown under the gum or between process and tooth, the longer it would take for the gum to recede and expose the edge of the band, but it didn't. While talking about crowns I want to say that I never saw the one that had come off or was taken off that I was willing to recrown without some additional preparation of the root. I have had long bridges fail from faulty articulation by loosening the abutments and break in two from the same cause.

When I come to plates I think this paper ought to be closed for all my mistakes in plate work would make a story as long and uninteresting as the Congressional Record. Usually one or two mistakes will teach a person something, but in plate work it takes a dozen or two. They overlap so much, correcting one mistake does not do any good. You must not make them. Everything must be right, step by step from the impression to the insertion of the plate. Here are a few mistakes I have made.

Mixed the plaster too thin. Inserted in mouth and held it in place only until it began to set and then told the patient to hold the tray or just let it hang. The result, of course, was a plate that would not stay in the mouth. Let impression or model or both lay around a day or two before using so they would warp all out of shape and look as if they represented another mouth. Made big deep air chambers and scraped the model all around the outside so the patient would be sure to come back four or five times to have it relieved and to talk about it in the middle of the afternoon when I was the busiest. It doesn't give the other patient much confidence that is waiting to have an impression taken. Articulated them without grinding the occluding surfaces, that makes them clank together like a sack full of marbles and about as useful to chew with. If two or three came together on each side with about equal force they were supposed to settle in place all right. Use nice white and very small teeth and set them in horse shoe fashion and you can recognize your patients farther in the dark, giving you ample time to turn down a side street if they are paid for. If they are not you don't need to dodge—the patient will do it. Don't buy mottled rubber, cut your pink and red or maroon in small pieces and pack carelessly, usually enough will run through to look mottled. Finish the edge of the plate with almost a knife edge so it will cut in the soft tissues instead of a nice round polished surface that can be worn much higher with perfect comfort. When you have to trim the edge of a plate do it with a dull knife or scraper and leave it rough so the patient will come back in a day or so and ask what is good for a canker sore. Most of the above mistakes are from carelessness and a general dislike for plate work. Almost any kind of a careless operator can cement a filling, crown or bridge or place to satisfy his patients, but it takes a good careful person to do as well with a plate. My greatest plate trouble has been the after results with partial plates. A noted oculist was being lauded for his wonderful success and was finally asked how he always had such excellent results. His answer was, "Well, I have spoiled more than a hat full of eyes learning. I ought to know something about them by this time." I have spoiled my hat full of teeth by putting clasps on and fitting closely to the lingual and pushing the gum from their necks, and have learned something, but I am not satisfied yet.

Dr. Frederick B. Moorehead, Chicago, discussed the preceeding paper as follows:

A mistake is misplaced judgment. Judgment has a two-fold basis—training and experience. All things being equal, the difference between a man who succeeds and one who fails is in preparation. The man who is prepared for his work has in his mind a composite picture. He sees things in detail, and yet has a vision of the perfect whole. Preparation implies proper training plus the personal equation. The personal equation is a thing to conjure with in all the walks, vocations and advocations of life. With these premises as a basis, mistakes are reduced to a minimum. All men make mistakes. But, to repeat, one's mistakes are measured and numbered by his natural adaptability and the manner in which he is trained. Proper training tends to conservatism. The conservative man makes the fewest mistakes. The one who is able to see "the end from the beginning," will know the best road to travel. The best road is always the safest road. To discuss seriatim a few items in the paper:

Fees.—"The workman is worthy of his hire." An overcharge has a relation only to inferior service. For service well rendered the dentist should be well paid. The man who renders the bst service can always demand the best fees. On the other hand, the fee should never amount to a burden. "The wind should be tempered to the shorn lamb." To inflict a poor man with a large fee is always unjust. The converse is equally true—the man of means can never pay too large a fee for highly skillful service.

Records.—Anamnesis is vitally important. A detailed history of every case forms a part of every well ordered office.

Irritation.—An ill fitting crown, bridge, plate or inlay, has often a far reaching baneful influence. One is often struck with the utter lack of relation between cause and effect in pathological processes.

No dentist should ever discharge a patient until his mouth is in a state of perfect comfort—free from all irritation. To enumerate the latter in this presence would be a work of supererogation.

Pulp Canals.—The treatment of pulp canals under all conditions is probably the most vital phase of the practice of dentistry. The man who is intimately connected with the surgery of the mouth is fully aware of the fact that over fifty per cent of the lesions which he is called upon to treat have their etiology in mismanaged root canals.

WHY AND HOW THE PUBLIC SHOULD BE EDUCATED AS TO ITS DENTAL NEEDS.*

BY C. E. BENTLEY, D. D. S., CHICAGO, ILL.

The dignity and the usefulness of any group of men is in direct proportion to its contribution to the public good. There is no gainsaying this proposition. In its finality it is axiomatic.

With this proposition before us, it will be my purpose to endeavor to emphasize it so as to justify some of the references I may make regarding the group with which we are identified. That the dental profession is not realizing its possibilities and fulfilling its highest duty for the common good is so patent that it has only to be mentioned to be recognized. That the verdict of latter day hygiene and sanitation seeks to prevent rather than to repair diseased tissues is known to all votaries of the healing art. That the unclean mouth is the habitat of diseased germs that are a menace to health, that carious teeth do often become the abiding places of pathogenic organisms, and that malocclusion and masticatory insufficiency induce stomachic and intestinal disorders, neurasthenia and a host of functional disturbances are known to all of us. Again, when I tell you that less than 12 per cent of any community pay any attention to the care of their mouth and teeth, I tell you a fact the importance of which is hard to realize when we consider how puerile and primitive our organized efforts have been to contribute our quota to the public good.

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*Read before the Northern Illinois Dental Society Oct., 1910.

Professor Osler has said: "If I were asked to say whether more physical deterioration was produced by alcohol or defective teeth I should unhesitatingly say defective teeth." Frederick Treves, the distinguished surgeon, says: "Everybody seems to be on a diet. It people were a little more careful about their teeth, they would not need to be so careful about their diet." The dental profession has known these facts and many more, for a long time, but it has not proclaimed them. I mean proclaimed them in an organized way. As a result, the reading world is startled when the daily press heralds such utterances from these eminent authorities from another profession, and with righteous indignation turns to the dental profession and says: "Why did not you tell us these things?" Horace Fletcher, a layman, has done more in a few years to concentrate the mind of the people upon the need of thorough mastication than the whole dental profession has during its entire existence. In short, he has done more for the public good in this regard than have all the dentists combined. This wholesale indictment of our profession should then act as a stimulus to greater effort, a larger usefulness and a higher place in the public's estimation, for remember that our dignity and worth will be in proportion to our contribution to the public good.

Let us take a cursory glance at some of the evils that result from neglected mouths and their environs:

1. Carious teeth. Cesspools of bacteria—often malignant—that under favorable conditions may produce the disease peculiar to their character.

2. Alveolar abscesses—(chronic) pus-geysers—during the act of deglutition myriads of these pus germs are swallowed, and the wonder is that greater harm is not evidenced. As it is, we know that these germs are directly responsible for much of intestinal derangement and stomachic disorders. Further, these abscesses may, by lifting the periosteum, produce necrosis of the jaw in which they are located, often necessitating surgical interference for their cure or removal.

3. Jagged edges of decayed teeth or roots often produce a local irritation of the mucous membrane that may eventuate in cancer or some other malignant growth. General Grant sacrificed his life thus, as have many others of less distinction.

4. Insufficient mastication due to lack of teeth. This has only to be mentioned for its importance to be recognized.

5. Pyorrhea Alveolaris (so called). The constant exudation of pus into the mouth often gives rise to the infection of tonsils, post nasal zone and an inflammatory condition of the alimentary tract and the antrum.

6. The host of diseases peculiar to children, many of which can be traced to the neglect of the teeth and mouth.

7. Irregularities of the teeth of children that can with comparative ease be corrected in youth, that become intricate problems later in life—with their attendant facial deformities and asymmetrical contours.

These are but a few comparatively speaking, of the consequences resulting from the neglect of the mouths and teeth of children and adults. I have left wholly unmentioned the surgical aspect, which is a field of itself.

Investigation shows that 96 per cent of the inhabitants of Sweden have defective teeth. America comes second with 93 per cent. Of army recruits 20 per cent in Germany and 24 per cent in England have practically useless teeth. Of 18,000 young men refused enlistment in the United States army in one year, 1,000 were rejected on account of bad teeth alone.

A compilation of statistics, too tedious to be read here, reveals the fact that from 92 to 95 per cent of the school children at home and abroad have defective teeth. In Strasburg, Germany, 2,103 children, between 6 and 8 years of age were examined. One hundred and sixty had sound teeth—about 7 per cent. This, then, is our declaration of particulars, our bill of evils. How can we remedy them? How can they be minimized? Only by giving the widest publicity possible to the facts together with their minimization or prevention.

The partial accomplishment of this can be effected in a number of ways:

1. By lectures.
2. By tracts and booklets.
3. By the press.
4. By examination of the teeth of school children in the public schools.

LECTURES.

Through dental organizations opportunities should be sought to inaugurate and carry on a series of lectures by their accredited representatives before various organizations whose ultimate aim is for the benefit of the citizens of that community—such as Mothers' Clubs, Women's Clubs, Teachers' Associations, Improvement Clubs, etc. These lectures should not be didactic nor technical, but should be reduced to popular language, and if possible accompanied with stereopticon and slides. This is one of the most popular means of disseminating knowledge of any kind, and has been used by dental and medical organizations to good effect in various places. It has an advantage over a printed thesis in that the audience has the privilege of asking for explanation upon a point that might not be clearly explained in print, and can seek that added information from the speaker direct.

TRACTS AND BOOKLETS.

The advantages of these media of distributing information are manifold. A limited number may hear a lecture, but an unlimited number may read what is printed upon that same subject. Again, it is permissible to enlarge upon and differentiate your subject in printed form, whereas certain exigencies impose limitations in that regard when speaking from the platform. Therefore, tracts and booklets are a powerful and useful means of spreading any gospel and especially that of cleanliness of the mouth and teeth with which we, as a profession, should be vitally concerned. One way in which this could be done through dental organizations—thereby safeguarding against personal advertisement, selfish aggrandizement and incompetent material—is that a committee should be appointed to compile, write and edit such a booklet or pamphlet and the same could be issued under the auspices of the society. These could be sold to the members for a nominal sum (one not to exceed the cost of publishing) and they in turn could be sold or given to the patients or friends of the individual dentist as he might elect. The cost of publishing would thus be returned to the society, and it would have used one of the agencies in distributing information so sorely needed by the general public. This booklet should be a treatise on the care of the mouth, using the simplest language possible to explain the various stigmata so well known to the profession. It might also be advisable to impose a law to the effect that no names appear upon the booklet—that it should be sold only to members of the society and that "compiled under the auspices of such and such an Association," be printed in a conspicuous place upon its cover. This plan is being tried by the Illinois State Dental Society and is working well.

THE PRESS.

The most powerful means of making or unmaking public opinion or affecting popular thought is the daily press and the current magazines. Can this power be used without lowering the ethical standards we have raised or disintegrating the ethical *esprit de corps* we have created? Heretofore, we have eschewed this means of proclamation because of its power and bewildering allurements. The temptation to use this force to gain an undue advantage over a confrere cannot be resisted by all men alike, and hence the ethical law has been specific regarding this means of advertising. Therefore the medium of diffusing knowledge pertaining to our cause should be approached with extreme caution. But, I think, that the time is past when we should refuse to use the Press to advance the cause of the good of a community in any way, because we may have some fine spun ethical theories regarding it. Of course, this, like the booklet, should be under the direction of the society, and any article appearing should be made wholly impersonal. A press committee, or committee on publication, should, in such cases, have charge of this matter. The Press is preeminently the means of educating the masses. Dentistry has never seriously used it for this purpose. Intelligent agitation in the Press will accomplish wonders along this line. I believe the Press would be glad of the opportunity to publish carefully prepared articles upon these subjects, emanating from the state or local dental society. Let us rid ourselves of the ancient fetich regarding the daily press and throw about this powerful ally such forces of regulation as to make its use a benefaction to the public weal.

PUBLIC SCHOOLS.

The idea that dentists should examine the mouths of children in the primary grades of the public schools for a long time has been endemic. Today it is epidemic. Sporadic outbursts in all parts of the country attest to the smouldering condition. In parts of England, Germany, France, Sweden and Japan it has reached a high degree of systematization. In the United States free dental services are rendered to public school children, notably in Cleveland, Ohio, New York City, Milton, Pa., New Haven, Conn., Boston, Mass., and Baltimore, Md. It must also be remembered that there are about 60 dental colleges distributed in the larger cities and that all these have free clinics attached to them, and a small percentage of school children is served by them. But, in spite of this there still remains the unpleasant fact that 93 per cent of the children in the United States in our public schools suffer from the ravages of defective teeth. Do you not see that what is needed with the school child is a campaign of education, widespread and deep-rooted? With the lecture, the booklet and the Press must come the actual contact of the child with the dentist, who will make the examination and the recommendation to the guardian or parent. In every instance where this has been done in the United States, in the cities mentioned above, the services of the dentists have been gratuitous. In Rochester, N. Y., the city, recognizing the importance of the work and the unselfishness of the dentists, has erected a dental hospital and conducts a free clinic under the auspices of the Public Health Association. In Cleveland, Ohio, the city buys the material and the Dental Association does the work free. In Milton, Pa., the worthy poor school children are taken care of by the dentists of that city, they working alternately without compensation. And so I might cite various communities where similar work is being done, and in every case the dentist is giving his service and in many cases his material without compensation.

This should at once relieve the profession of the charge that has been made, when this subject has been discussed by school boards and others of having an ulterior motive. Wherever this idea has attained any considerable growth by reason of its agitation there have always come forward a number of volunteers who tendered their services without hope of reward, save that return which comes with the satisfaction of having done a good deed. There is, however, the remote hope that the importance of this subject may become so apparent that municipalities will maintain at their expense dental clinics and pay a reasonable sum to those conducting such.

Why should it be less reasonable to have visiting dentists than visiting music teachers, and drawing teachers and teachers of physical culture? When the masses realize that it is just as important to have good teeth as it is to have any of these arts, they will have visiting dentists, and it is up to the dental profession to see that they know this. The most important argument in favor of the examination of the mouth and teeth of school children is the educational benefit it would be to the community. Is it not the duty of the schools to arouse society to intelligent thought on the importance of better modes of life? Is it not the duty of the schools to train persons to live better? Is not this the true purpose of the schools? The logical place to begin this is with the physical life of society, the one phase of life that has been most ignored in our educational methods until very recent times. One result of the more intelligent interest of the people in matters concerning the health of children is the introduction of expert medical inspection into the schools. Thus far this inspection has confined itself largely to the sanitary condition of school buildings and the general health of the pupils. If there has been any specialization it has been examination into the condition of children's eyes and perhaps the nose and throat. One important factor has been disregarded and that is the need of the periodical dental inspection. We learn that among children toothache and neuralgia are fruitful sources of absence from school.

The mental and physical efficiency of school children can be greatly aided by the proper care of the mouth and teeth. This is fully attested by experiments in Germany which cover a wide field. There dental infirmaries connected with the schools have been in operation long enough to demonstrate:

1.—That the time expended in putting the teeth in order was far less than the time formerly lost from toothache and disability caused by diseased teeth.

2.—That the cost of keeping the teeth in order was more than compensated for by better health and a consequent reduction in medical expenses.

3.—That the child became physically stronger, secured a higher average in his studies, was easier to control and was apparently happier.

A clean mouth and clean teeth furnish one of the best protections against disease. A child forced to swallow the discharges from an unclean mouth, and having nutrition interfered with by his inability to chew his food, is unable to resist disease.

A medical examiner who inspected the mouths of 1,000 children found only two who used a tooth brush.

A tooth brush drill is needed in our public schools. That a *clean* tooth will not decay, and that decay is caused by *septic organisms*, must be widely taught.

A number of loose examinations are upon record and available to the investigator of this subject. These examinations have been made for the purpose of getting a general idea of the state of the children's teeth, but from them it would be impossible to draw any exact conclusions. A much more careful examination, however, was made with mouth mirror and probe, by an inspector, of every tooth of 245 children, who found that each of these children had 3.9% carious deciduous and 2.8% carious permanent teeth. Nine and three-tenths per cent had alveolar abscesses or fistulæ discharging pus; 16.3% chronic pharyngitis; 2.9% showed chronic enlargement of tonsils; 61.2% had enlarged submaxillary glands and anæmia was noted in 37%. Beyond a few instances where teeth had been extracted or broken there was no evidence of dental treatment, and the tooth brush was practically unknown. Only three of the above mentioned children possessed tooth brushes or showed signs of having used them regularly, and these three were practically free from caries. Bacterial deposits, tartar, food remnants and a general malodorousness was generally found.

Do these conditions warrant a campaign of education and agitation? Are these physical disabilities to the children of sufficient gravity to justify our cry of "DANGER HERE!" Are we fulfilling our full professional obligations to the public good, unless we bestir ourselves in this regard?

Another plea I must make is that the whole subject matter pertaining to the care of the mouth and teeth must be rewritten in our school physiologies. What these text-books say upon these subjects is, as a rule, wholly inadequate and misleading. I might give a number of citations to justify this remark, but time will not permit.

My plea is for more exact data concerning this subject in order that the child may have a working idea of the teeth and their associate parts. This data need not be technical nor involved, but it should be intelligible.

It seems to me that the one to give these facts is he who is most conversant with them. Therefore, I claim that the dentist should supervise this chapter in our text-books. What has been written has been by physicians. The time has arrived in the development of our young profession, when we not only recognize the insufficiency of this knowledge and the inaccuracy of its data, but we have developed an army of men, who are capable of giving fuller and more exact information and more accurate and reliable data.

And further, I believe that the acknowledged usefulness of our profession and its contribution to society's well-being has enhanced our worth in the public's esteem and it is willing that these things should be written by dentists.

I need hardly say to you, in conclusion, that our responsibility is the central thought of this paper; that the limited instruction given in our public schools on the care of the teeth is not sufficient; that the mere filling of a tooth—as typifying dental clinics—or the reading of papers to or at each other is not fully living up to our obligations. We are called upon for more than this and our code of ethics demands that we shall "Educate the public mind so that it will properly appreciate the beneficent efforts of our profession."

Dental education of the public, especially children, given by or under the auspices of our district and State Associations will do more to stop quacks than legislation and will redound to a large appreciation of the true spirit of professional dentistry.

PROCEEDINGS OF SOCIETIES.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting was held at Orchestra Hall, October 27, 1910, with the President, Dr. Frank H. Zinn, in the chair.

Dr. Zinn in calling the meeting to order said:

Ladies and Gentlemen: It is highly gratifying to the members of the Chicago-Odontographic Society to see this large audience this evening. It shows that you are not only interested in the subject to be discussed here tonight, but also in the speaker. The gentleman who is to address you does not belong to a medical or a dental society, nor to the dental or medical profession, but I can assure you that the dental profession is willing to confer upon him the honorary degree at any time he may indicate. (Applause.) It is not my purpose to make a speech to you this evening, but I will call upon the Chairman of the Program Committee, Dr. C. E. Bentley, who will make a few remarks before introducing the speaker of the evening.

Dr. C. E. Bentley:

Mr. President, ladies and gentlemen: I have been asked to say a few words relative to an educational campaign that has been undertaken by the Chicago-Odontographic Society, which, by the way, is the largest local dental society in the world, and under whose auspices this meeting is held this evening.

Twelve years ago this society having for its ultimate object the establishment of free dental infirmaries for the care of the teeth of the poor children, of the public schools, in the City of Chicago, conducted a vigorous inquiry as to what had been done in this regard in other places. The scope of the investigation was international. To every country in the civilized world, to every city over twenty-five thousand inhabitants, certain formulated questions were sent. These questions were sent to the school boards and to what would correspond to our city council. Seventy-five per cent of these replied. It was found that in Germany and in England, or parts of England, in Japan and in Sweden, systems had been introduced into these countries for this purpose that had received a high degree of efficiency. These systems had been in operation sufficiently long to justfy the drawing of conclusions, and I desire at this time to state simply two of them. One was that from ninety-three to ninety-five per cent of the children examined had defective teeth. The other was a very significant comparative experiment that was conducted in a burg in Germany. I think this experiment should have a bearing upon the whole cause. The object of the test was to see what effect, if any, dental care and dental supervision would have upon a group of children as compared to a similar group who did not have that care. According, fifty children were chosen, twenty-five of whom were provided with tooth brushes, with instruction as to their use, and their mouths placed in as healthy a condition as was possible. The remainder of the group, the other twenty-five, were instructed to use the usual or customary methods that they had been using prior to the investigation. The investigation was carried on for a period of six months. The results showed with the group whose teeth were cared for, three things. First, that there was an improvement in the general health of these children. Second, that there was a greater aptitude for study, a keener zest for play, and more endurance; and third, that there was a marked decrease in the absences from school. The group that was not cared for showed no material change as compared to the facts adduced prior to the examination.

Now, ladies and gentlemen, these facts and these data were compiled and classified and put in concrete form and by a committee from this society were presented to the Board of Education of the City of Chicago, and they asked that similar methods be introduced here, and justified their request upon the deductions from the investigations that I have referred to. They further offered to man these infirmaries with dentists from this society without cost to the city. The project failed for the simple reason, for the efficient reason, that the people were not ready for it. That is to say, the people had not been educated as to its necessity, and it was not reasonable to expect that the representatives of the people would see its necessity. Other cities, however, soon caught the infection and commenced a serious educational campaign along this line, and after a number of years of this sort of campaigning, within the last three years we have throughout this country had established a large number of free dental infirmaries, notably those of Cleveland, Ohio; Rochester, N. Y., and a number of smaller places. Dr. W. A. Evans, Commissioner of Health of the City of Chicago, who is expected here this evening and is detained by reason of the fact that he has another engagement, is responsible for the statement, that the germs of scarlet fever, of pneumonia, of tuberculosis and of diphtheria have their first lodging places within the mouth, and when we consider that an unclean mouth filled with decayed or decaying teeth affords a splendid hiding place for these organisms where they can multiply undisturbed, such a child not only becomes a menace to itself, but becomes a menace to its fellow. Therefore, the Chicago-Odontographic Society believes that this compaign is justified if for no other reason than in the cause of public health.

We hear a good deal in these days of conservatism, conservation of our forests, the conservation of our coal fields, the conservation of our mines, and our water rights, and so forth, and only recently did the government of the United States issue an exhaustive treatise upon the foods that our hogs may be fed on in order to get the maximum results from those animals. But we hear comparatively little regarding the conservation of the child. In the light of our modern sanitation and hygiene, it is high time that we address ourselves and our energies to some plan that may have for its object the conservation of the health of the human individual. The dentist in this latter-day awakening, is cognizant of the importance of his contributions to the public weal, and we pledge this evening, that we stand ready, to do our full share in this work. Therefore the campaign begun twelve years ago is to be renewed with a greater intensity, and with a greater hope of success because the people are now ready for it. In the name of this society, we ask you this evening for your full co-operation, for without it, without public sentiment back of it, our efforts will be as futile as they were twelve years ago. The American conscience has been quickened in this regard very recently, as is evidenced by the many articles in the magazines and daily press of this country upon this subject. There are many facts we have known for a long time that have now become common property. For instance, there are 500,000 children in the parochial and public schools of the City of Chicago, and there are only eight per cent of these who have anything like efficient dental care or dental supervision. Another fact is, that it is pretty generally known today among the laity that the nutritional process of the child, during its plastic period, is most greatly interfered with at that time, and we know that an unclean mouth and uncared for teeth seriously interfere with that process, for these are the gateways to the seat of that process. Now, in this awakening in the conscience of the American people, no one man, nor no one group of men have given a greater impetus to this movement than the gentleman who is to address you this evening. Indeed, he is the living embodiment of his own theories, as his clear eye and ruddy complexion and symmetrical proportions attest. (Applause.) Relegated, as he was, over twenty years ago, to the scrap heap by life insurance companies as a totally unfit risk, he set about to find the secret of the nutritional process that would automatically maintain equilibrium between waste and repair, and he succeeded. Not only did he succeed, but he gave the result of his findings to the world, and the books he has written upon the subject have been translated, I believe, into every civilized tongue. Furthermore, he has given sixty thousand dollars of his own resources for the advancement of the cause. (Applause.)

It affords me, therefore, very great pleasure to present this gentleman to you, who makes his initial bow before a Chicago audience, this gentleman, this scholar, this scientist, this philanthropist, this citizen of the world, Mr. Horace Fletcher, who will speak to you upon the subject of "The Gateway to Health and Efficiency." (Applause.)

[Mr. Fletcher's lecture appears in this issue.]

At the conclusion of the lecture, DR. WILLIAM A. EVANS, Commissioner of Health of Chicago, was introduced, and spoke as follows:

Mr. Chairman, ladies and gentlemen: I hope that you will understand it is not my intention to speak at any length at this hour for two reasons. In the first place, the hour is late, and it is time that you were retiring to your homes. In the second place, I have no intention of furnishing an anti-climax. You have come here tonight for several reasons, and one is that you are anxious to see and hear the man who has not only preached and practiced, but who as the result of his preaching and practicing has built up a physical framework for himself that it is a pleasure to look upon, and his preaching has been largely responsible for the spread of saner ideas of nutrition, of digestion, and of mastication than have previously prevailed in this country. It is, I believe, a source of gratification to every one who looks at these things rightly that the people are interested in them. It is pleasant to think that men are willing in the midst of their busy lives to stop for an evening and come here to spend that evening with the speaker. I believe we have all been benefited by hearing the message that he has brought to us. There is nothing that is quite so forcible as that when a man has a message to deliver, he delivers that message with effectiveness and force. It is all the more forcible and interesting when it comes from a man who speaks not as the result of conclusions that are vague and indefinite, but who speaks from the standpoint of a life that has been lived along the line that he is asking others to live their lives. It is refreshing from another standpoint, and that is this: It was not long since when the only interest in things medical that could be incited in this country was relative to the cure of diseases; when the only idea that could take hold of the public attention was the one of relief from a condition or conditions that were established. It means much for our country when that idea is being supplemented by another idea, and that is, the man who so lives and so regulates his life in all of its phases as to be healthy, deserves to be healthy. In the last analysis that is the best view of life to take; in the last analysis it is the most rational view of life to take. The man who disregards the laws of right living, and who when he comes to pay the penalty of the infraction of the laws of right living, is getting nothing more than justice, is getting nothing more than that which is rightfully coming to him. It therefore means much that a large audience should be gathered together from all parts of this great city and spend an evening in the contemplation of the principles that make for the prevention of disease rather than for its cure. (Applause.)

It has been said that dentistry has not risen to the plane of a profession. It has been said that dentists do not properly understand themselves in relation to their fellowmen, and the needs of society. It has been said that the dentist was not properly recognizing his own rights or the posibilities that were his. However true this may have been in the past, and I do not say that it has not been true, the fact now is that the dentist is understanding his community relations better than he has ever understood them before, and as the community comes to see that the dentist is occupying some part of his thought for the betterment of man, the community comes to appreciate the dentist and dentistry more than they ever have done in times past. It means something when the great majority of the people of the country have teeth that are defective. This does not necessarily mean that these defects are of major consequence, but the fact that a considerable minority of the people have teeth that are very defective and need repair means a good deal, and the people will not understand and will not appreciate the labors of those who are endeavoring to cure this situation until they are brought to a realization of the large number of people whose teeth are neglected. We are in the midst of a great movement in Chicago for the recognition of the public relations of dentists and of dentistry. Much of the harm and much of diseases that ensue are the result of the neglected mouths of children, and an effort is being made, and that effort is being made practically entirely by the dentists of the City of Chicago, not only to awaken the people to an understanding of these conditions, but also to bring to them some measure of relief, and one of the things for which this meeting has convened is to concern itself with this aspect of a great public question.

The president of a life insurance company has recently written much concerning the unnecessary deaths of people at ages that are necessarily young. As the result of nutritional diseases, of Bright's disease, of cardiac disease, of diabetes, of apoplexy and diseases of this character, as a general proposition the health departments have concerned themselves with the prevention of contagion, and then as they have become a little more cognizant of their responsibilities they have come to understand that certain sociological problems project themselves into disease, and out of these sociologic problems that are neglected there flow such diseases as consumption and typhoid fever; and then the other thought is the importance of our relations to the child that has been neglected, the poor houses, the insane asylums, the jails and penitentiaries, and we are concerned with the further fact that those who are dying as the result of nutritional diseases, who are dying at ages that are too young, can in a considerable measure have their woes lessened, and this is an opportunity, as we see it, for the work of health departments. That Mr. Fletcher is engaged in the noble work goes without saying; that the dentists are undertaking their part of it this meeting is evidence, and that the people are prepared to shoulder their responsibility in the matter is very evident from their attendance and attention they have given to this subject this evening. (Applause).

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting of this society was held on Tuesday evening, October 11, 1910, at the office of Dr. Davis, Chicago, Ill.

The Vice-President of the society, Dr. C. N. Johnson, occupied the chair. Dr. F. E. Roach presented a paper on the subject of "Preservation of Loose Teeth."

DISCUSSION.

Dr. S. F. Duncan, Joliet, Ill.:

I enjoyed Dr. Roach's paper, but I do not think I am competent to discuss it. I think we all have cases where it is a question whether to extract loose teeth, or try to save them, and I think the method he has suggested will help us out in a great many instances. It may reflect upon us when certain people lose their teeth, but we cannot always stop for this. We should do the best we can in our judgment.

Dr. J. H. Woolley:

I am always marvelously impressed with the wonderful technical skill that some of our modern dentists have in the manipulation of gold in these intricate cases. I very much favor the retention of all the teeth, and particularly the loose ones. I have in mind a case that I did not manipulate in the same manner that Dr. Roach has spoken of in his paper. I have had a patient for about two years whose front teeth, central lower, were loose. I suppose you might consider it a rather botched way of retaining, but I have kept those teeth tightened with a silk ligature for nearly two years. About once a month or two months I adjust it for the patient. I have paid attention to the gums, having previously treated them, and they are in as healthy condition as I could make them. It has been surprising to see how they have grown up around those teeth. About three or four months ago in readjusting the string the right central tooth came out. I aligned that tooth, and tied it in with the rest, and it is surprising to see how the gum has grown up around that tooth which had been replanted, you might say. My reason for tying with a silk ligature was that I feared on account of the looseness of the two cuspids on each side a more rigid appliance would cause an increased looseness of those cuspids, because where the rigidity occurs the movement would be equalized, and consequently the force spent on the abutment of the two cuspids, so I kept them strung up with this ligature, and there was less rigidity. This may seem to you an unskillful procedure, but I have succeeded in keeping those teeth in position firmly, securely, and with comfort and health. This takes me right back to what I have been thinking of for the past ten years, and that is that we ought to get at the cause of the loose teeth. We ought to investigate the cause of pyorrhea. A lady said to me in my office: "Doctor, why is it that you dentists do not in some way devise some plan by which you can get at the cause of pyorrhea?" She said: "My friends complain that you do not get at the cause of this disease." I hope that the time is coming when we dentists will be able to pay someone to devote his life to that special work. The Rockefeller Institute is getting at the cause of tuberculosis, and here we, as dentists, are doing nothing.

Dr. J. G. Reid:

The matter of handling loose teeth undoubtedly faces every operator that practices dentistry, and it is serious not only to the dentist, but many of our patrons. It is oftentimes exceedingly embarrassing to explain the conditions that cause loose teeth. You confront your patient with the fact, and the first question naturally is: "Whose fault is it? I am sorry to have to admit that a good part of it lies at the door of the dentist. That may be a pretty strong thing to say, but from what you and I have seen it is sufficient to convince us that we have failed in our duty in many instances. There are too many teeth lost from poor dental service. There are too many people who believe the incompetent or lazy dentist who says they cannot be saved, and that is one reason why we are very largely at fault. I cannot offer any explanation for this other than that it is laziness.

That is not the thing that interests us in this paper. It is after the teeth have become loose that you are confronted with the proposiion as to how best to preserve those teeth. There are many ways which have been presented by which this may be done, both creditable and discreditable, more frequently the latter because of the fact that the dentist does not give the matter the thought and attention and study that it requires. He jumps at conclusions too quickly. The same thing is done in the case of irregularities of teeth. How often an off-hand statement is made to the patient that a certain thing is an easy thing to do. Anybody can do it. Gentlemen, it can't be done. It takes an artist to correct irregularities, and make an appliance that will meet the conditions as presented in this paper. We are not all prosthetic dentists.

There is one thing in the paper that struck me as being funny, and yet it is serious. At the end of the paper the writer makes a statement that is to be criticized, as follows: "When used under its indications it embodies the following advantages: affords a rigid support for lame teeth. It is reasonably sanitary." True. "Offers a permanently solid support for the teeth that are supplied." True. "Easily constructed." Very far from true. Gentlemen, it is not easy to construct an apparatus of that kind except for the man who is an artist. It requires the highest kind of skill. These are things that Dr. Roach can do and does do. I have seen them with my own eyes, and can corroborate what he says, but to say it is done easily is a misnomer. The appliance when it is completed is a thing of beauty. It is easy for him, but it is not for me. We cannot all be correctors of irregularities, and here is another instance of special things that require a great deal of thought and study.

DR. E. R. CARPENTER:

Mr. President: There seems to be very little for me to say in commenting directly on the paper because I cannot presume to disagree with one who has given as much time and study, and has achieved such good results as has Dr. Roach.

I am not quite as contrite of heart as Dr. Reid and Dr. Woolley in regard to our lack of duty in forestalling the loosening of teeth. There are many reasons why teeth are loose, and there are many reasons why a patient in our own hands for years can ultimately reach that stage. They think more of their pocket-books than of our advice. The other day one of my patients came back from the west after a four months' trip. In looking over his teeth I found that the pulp floor of a first molar had been drilled through by a western dentist and I had to extract the molar. I informed the young man that there would have to be a bridge put in. He asked what it would cost, and when I told him the fee he said: "That is a lot of money." I said: "Yes it is, but if you do not have the space filled it will be a case of pyorrhea before you get through with it." The boy's father doesn't want to have the work done. Is that our fault? I resent it. The same thing is true with adults. They ignore our advice because they do not care to spend the money.

DR. C. S. CASE:

Mr. President: As I understand the paper it is not in relation to what has produced the loosening of teeth, but pertains particularly to certain methods of preserving teeth that have become loosened by pyorrhea principally. Dr. Roach has presented a very fine paper upon this subject. It is such an extensive subject it was impossible for him to go into it in detail, but he has presented important principles that should be hammered home. The first principle was: that all of the cause—as far as possible—should be removed, which referred to deposits of calculus around the roots of the teeth. Then the teeth should be put into proper positions and held absolutely relatively still. The next principle was that the appliance, whatever it was, should be free from the gingival margin, so as to present an opportunity for treatment and cleanliness. While the denture part of it is removable the real framework of the appliance is attached to the teeth with perfect stability, and in a position free from the gums, so that the gingival margins can be gotten at and treated properly after the appliance is in place.

The next point was to see that the occlusion of the teeth did not force these teeth out of position, because in the mastication of food it is practically impossible for anything to withstand the occlusal forces of the teeth. He has shown you how he overcomes the distal-mesial movement of the teeth, with the bar which supports the artificial denture. And again, with the palatal bow across the roof of the mouth he prevents the bucco-lingual movement. It is a perfect arrangement, and Dr. Roach should be very highly commended.

DR. TRUMAN W. BROPHY:

Mr. President: I do not know that I can say very much more than to commend this method as a most ingenious and practical one. While the essayist was reading his paper, and during the discussion I could not help but go back a little further and consider the cause of the loosening, and the conditions confronted when the patient is presented for treatment. I think that we must not overlook the question of pathology. I cannot conceive how we can undertake the treatment of a condition without taking into consideration the nature of the abnormality that we are treating; and while the essayist has not intended to talk about the condition more than to call our attention to the loosening of the teeth we might reasonably ask ourselves:

What general condition have we? What systemic condition have we here that may make the treatment or the adjustment of such an appliance necessary, and if we ask ourselves that question we must go into the question of pathology. I think that Prof. Case, in the execution of that remarkable work that he does, always considers the systemic condition of the patient he has under treatment, for I cannot understand how it would be possible to undertake the regulation of teeth indiscriminately without looking into the general condition of the patient.

It has been my privilege during the last few years to see a great many children who are sufferers from inherited specific disease, and it so happens that this disease is not limited to any particular class or set of people. Caste is not regarded here, as it may inflict the highest or the lowest; and if in the treatment of a condition like this we have confronting us a specific disease the appliance would fall short of accomplishing the ends that the essayist would expect it to accomplish. In the event that the patient is free of anything of that character, then he might very reasonably expect by supporting the teeth and holding them still, to accomplish the end that has been explained. In the practice of medicine and surgery from time immemorial that has been the idea, that when a part is in an abnormal state put it to rest. The essayist has put the teeth to rest as far as possible to do so, and the only way to treat teeth of that character, and bring them back to a state of usefulness, is to hold them still. That has been one of the greatest drawbacks in the treatment of so-called pyorrhea alveolaris, that the dentist will keep on treating and injecting medicines around loose teeth, and yet the teeth are loose, they are not kept still. An adjustment appliance in such a case the essayist would not attempt without first changing the occlusion so that the teeth would meet in such a way as to prevent that side motion.

I do not know what more I can say except to congratulate the essayist on presenting a paper of this character, and to thank him for the information he has given us all. I would like to impress on the members of the society the great importance of looking into the history of each case so that knowledge may be had of the character of the disease, and then have the patient treated according to the requirements locally and systemically, if need be. Today in my clinic a little girl five years old came in with necrosis of the mandible extending from the first molar to the central incisor, and a great ulcer on the cheek and lip opposite this. Specific disease. Where did she get it? I don't know, but there it is. If those teeth were loose without the bone being exposed and necrotic it might be the proper thing for the dentist to adjust a splint. What that child needed was internal medicine, together with local applications to the parts.

Dr. J. E. Hinkins:

Mr. President: I have enjoyed this paper from our infant member of the society, but not an infant when it comes to mechanical excellence. I believe I am as incompetent as Dr. Reid when it comes to executing this mechanical work. Of course all of us who try to do our best with our patients have our trials and tribulations with loose teeth. I agree with Dr. Carpenter, and I am sorry I cannot agree with friend Reid, who is so conscientious. I will say frankly that in the last two or three years I am probably a little more mercenary about the treatment of loose teeth, and all other lines of dentistry than I used to be. There was a time when I thought it was a crime to extract a tooth, but I am thankful that I have got past that stage. When a patient comes to me now I look him over as thoroughly as I can, and diagnose the case accordingly. Then I remove the deposits as easily as I can, and if the teeth are very loose I ask them to go to the X-Ray man and have a skiagraph taken. If they do not take interest enough for that I ligate the teeth with a silk ligature, or something of the kind, but if they will take an interest in themselves I will go them one better every time, but I am not going to wear myself out with people who do not appreciate it. If you get a skiagraph you will find there is absorption or excementosis of the root and it would be useless to try to save the teeth. By the help of the X-Ray you can remove those teeth. I think it is useless for any dentist to worry over a lot of old loose teeth, for the people won't do anything but criticize you in the end. In most cases there are back teeth where you can put on a partial gold crown on one quarter of the tooth and attach this to the anterior teeth using Dr. Case's splints between the teeth, to support them. It is remarkable to see what good results you can get. I think I extract ten teeth now where I used to pull one. My patients appreciate it, and I am doing better work.

Dr. C. N. Johnson:

I appreciate the mechanical ingenuity of Dr. Roach's retaining appliance, and I think it adds another method by which we can retain these loose teeth.

A question has been brought up to-night probably a little aside from the subject of the paper, and still very pertinent, as to the cause for the loosening of the teeth. The dental profession has been taken to task for neglect in the management of these cases. Gentlemen, I am absolutely convinced that there are very many cases of loosening of the teeth that the dentist has no more control over than a bird flying in the air. There is something fundamental and constitutional behind some of these cases, in the face of which the dentist is absolutely helpless. I had a patient in yesterday for whom I extracted some teeth. The lower lateral incisors were loose and the central incisors were firm. I banded the two centrals and swung in the two laterals. The man was immensely pleased. This was several years ago. Yesterday I took a pair of forceps and picked the whole four teeth out. Other teeth are loosening in the mouth. There is no flow of pus, and there is nothing that I can do to stop that loosening. There is no deposit, and it is simply a constitutional defect that I don't know anything about. I do not believe that the profession in all cases are keeping the teeth of the people clean enough, and still, as some of the gentlemen have said, we are doing the best we can. I believe that if the cause of the loosening of the teeth is ever discovered it will be found that there is not one cause, but half a dozen different causes. We will have to go away back, and I tell you we need a Rockefeller institution in dentistry as much as in medicine. We will accomplish more for dentistry when some wealthy man endows an institution of that kind. I think it will come in time, but it does not seem that it is coming fast enough.

I want to add my tribute to those already paid to Dr. Roach. It is a new method to me, and I imagine that there are many cases where if this were skilfully done it would help the patient over a trying time. I do not believe that anything we do of that kind is permanent, but if we can make the patient comfortable for years we have accomplished a great deal, but we should have a distinct understanding with every patient that we do not know how long it will last. There is a life process behind all these cases that we cannot govern.

Dr. Roach, in closing the discussion, said:

Mr. President, I regret very much the view that the majority have taken of the paper I have presented, and I think possibly it is my fault that I did not spend more time going into details, and explaining more in particular the purpose of the bar splint. I regret exceedingly the view that Dr. Reid and others have taken, that it is a difficult thing to construct. If I were to emphasize one thing with reference to it, or say that it has one feature that commends it, it is the ease with which it can be adapted to the teeth. I do not believe that anyone has any right to criticize a method unless he has endeavored to make the thing himself. I regret also that very few seem to have grasped the idea that this is not a splint to be used as a substitute for the various kinds of splints that have been used in retaining loose teeth. It is a splint to be used where there are a number of teeth lost, to support the teeth adjacent to this space. It was for the purpose of supporting such cases as this here, where the patient had worn a four-tooth bridge that I could pick out with my fingers. The bridge was poorly constructed. There was no account taken of the occlusion. Putting on a fixed bridge or any kind of appliance will be of no avail whatever in the preservation of loose teeth. We must apply the splint in a way that will distribute the force to overcome the tendency to loosening.

I did not present this to you with the claim that it is a cure-all, but I simply presented this method as a means which we may add to the various forms of splints we are using for extending the life of the teeth. I would not have the impression go out that I recommend this splint as a means of permanently saving loose teeth, but it does extend the life of the teeth in many instances, and make it comfortable and useful to the patient. I believe the appliance is well worthy of your consideration, and I know that I am using this splint in a way that is getting service for the people who wear it. Dr. Case grasped the idea more accurately and thoroughly than most of you, and I believe he explained almost exactly as I would have explained if I had attempted to do so in a few words, and that is that we should study these things, and construct it so that it does not cause any irritation, if possible.

I will say too, that the casting of gold has made this thing very much more simple than before, and by means of casting we can eliminate the abominable banded crowns we have been using, and eliminate one of the causes of loosening of the teeth. The construction of this bar, and attaching it to these abutments is a simple procedure. How many operations are we doing today that are so simple that we can take them up at first trial and make a success without giving them some study? Simply because it looks complicated is not any reason why we should not adopt it, and make use of it. I am enthusiastic and sincere in presenting this splint, and calling your attention to it, for I know it has merit, and for the reason that it is new I would like to have you give it a little more careful study.

Dr. Hinkins' and Dr. Brophy's suggestions as to the study of the pathological conditions are very much to the point, but this was a plain case of pyorrhea, and the deposits were there. The teeth are now in a healthy condition, and the patient and myself are both pleased. It is for these desperate cases that this appliance is applicable, and I believe you will have more faith when I can get one of those cases and show it to you.

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THE MIS-USE OF PEROXIDE OF HYDROGEN.

After all that has been written from time to time regarding the danger of using peroxide of hydrogen in closed cavities containing pus, there is great harm still being done by this agent. We see occasionally advice given in printed papers to use peroxide of hydrogen for the treatment of putrescent pulp canals with the statement that the application should be continued till the effervescence ceases. Such advice as this is most dangerous. It leads men to use this agent indiscriminately for the purpose of cleaning out pus pockets when the fact is that its use in this connection is quite likely to do more harm than good. The effervescence which seems to appeal so strongly to those who advocate peroxide of hydrogen is frequently the pernicious means of carrying infection deeper into the tissues than the abscess cavity itself. Not only this, but it has been known to burrow beneath the periosteum of bone, stripping it bare for a long distance and inducing serious necrosis. It is very rare that in any abscess located within bony walls, the condition is not aggravated rather than helped by peroxide of hydrogen, and it is time that the profession was made fully aware of its dangers. It is sometimes advocated for cleaning out a diseased antrum, but it is safe to assume that this advice is usually given by a man who has never tried it in an antrum. To put peroxide of hydrogen in an antrum which has pus in it is to start a volcano which makes the patient imagine that his whole anatomy is being blown up. And even after the eruption has ceased so that the patient may breathe again there is always grave danger of serious stripping of the bone by the agent. The safest way to use peroxide of hydrogen in most of the diseases which dentists are called upon to treat is to leave it sealed in the bottle on the shelf for a short time and then throw it in the sewer. It may not do any harm there.

THE EDITOR'S DESK.

LETTERS TO A BEGINNER.

[EDITORIAL NOTE: When these "Letters" were begun in THE DENTAL REVIEW the editor had no idea, in view of the fact that they were published in the editorial department, that they would be attributed to any one except himself, but so many letters have been received from readers asking for the name of the author that it seems necessary to announce in this public manner that he alone is responsible for them. Hereafter each month they will be signed by his initials, which he trusts may prove an adequate pleading guilty to their authorship.]

(Letter No. 5.)

MY DEAR BOY:

I have attempted in my former letters to prevent you from drifting into unfortunate habits during your college course, and now I am going to ask a favor of you. No man can live unto himself alone and do his whole duty by this busy, bustling world of ours, and you owe something to the development of others as well as to yourself. There is a fellow in your class—there may be several for all I know—who needs your assistance, your counsel, and your encouragement to keep him from going astray. He is not quite so strong-willed as you are, or probably he has not had as good opportunities as you have and I am growing anxious about his future. I believe you have it in you to keep that young fellow straight. He needs the help that I know you can give him, and I want you to devote yourself to him from this on and see what you can make out of him. Do not get cross with him or impatient.

I am going to tell you something just at this point which I wish you to remember as long as you live, and always to apply it in your dealing with difficult people. You and I owe more consideration to the so-called cranky, disagreeable, and even dishonest individuals we encounter than we are ever inclined to imagine. Back of every mean act there is usually a heritage of predisposition for which the particular individual in question is not entirely responsible, or there may have been a train of circumstances over which the individual had no control, which led up to the meanness. I am not trying to condone willful and persistent wrongdoing in any individual of responsible years, because I think years should bring with them the effort to reform, but I do know that some very excellent people—at least people who mean to do right, and aim to do it—fall from grace occasoinally through hereditary influences for which they are not to be blamed. It is a salutary thing for us always to remember the saying: "To know all is to forgive all," and when you have committed this saying to heart and repeated it daily in your intercourse with men it will make you more charitable and more helpful.

When this boy of whom I speak has made a mistake you can do him a world of good by showing him that you have an interest in him, and that you believe in him. That helps wonderfully, and, that you may not think that this is a barren sort of business so far as you are concerned I want to assure you that no matter how much good you do to the other fellow, it is a mere bagatelle compared with the good you are doing yourself. The moment you begin to help others to better things that moment you begin to grow yourself, and the development to be obtained from helping others is something wonderful. But do not lecture this erring brother of yours or approach him in any sanctimonious or prosaic manner. If I know anything about the disposition of boys this kind of thing won't go with him. Just slap him on the back, or may be put your arm about him, and say: "See here, Billy boy, you've stubbed your toe a bit, but sore toes get well, and you don't want to limp so much. If you do you are likely to stub your other toe, and two sore toes are too much in one family. Just buckle up your galluses and take another reef in your good intentions, and the boys will help you hold yourself together."

Then the boy will say something and you must be governed by what he says as to the kind of answer you make. I cannot go on suggesting a conversation between two boys under such circumstances, because the ingenuity of man never yet predicted what a boy will say when you approach him on an errand of that nature.

I do not believe it possible for you to realize how much you may elevate the personnel of your class by the example you set before the boys and the influence you exert in the right direction. If you have followed my advice you are yourself on the safe list so far as making good grades is concerned as well as in the development of your character, and now your chief endeavor should be to spread your influence among the other boys and try to raise as best you may, the moral status of the entire class. As a professional man you are to have a mission in life aside from the mere filling of teeth. You are to be an educator and an uplifter, and the logical place to begin is in college.

As you get on toward the close of the freshman year you should organize small quiz classes among your intimate friends for the purpose of reviewing the work of the session in the various departments. In organizing these classes let the first requirement for membership be an agreement to attend strictly to business during the progress of each quiz. It is possible for one or two young fellows who are full of mischief and who lack interest to spoil a quiz and waste the valuable time of half a dozen others. Time is precious just at the close of the session, and if you are to make the high grades I expect of you, it will be necessary for you to utilize your time to the best advantage. I like to see boys with some mischief in their make-up and I want them to have a healthy share of fun, but there is a time for work and a time for play, and a college course is an excellent place in which to make a distinction and draw the line between the two.

Do not get to worrying about your examinations. The moment I had written that sentence I was forced to smile at my lack of originality. How many myriad times that advice has been given to students under like circumstances, and how very easy it is to give that kind of advice. Much easier I know, to my own sorrow, than it is to follow it. And yet the thing to remember is this, that too much brooding over an approaching examination develops a nervousness which seriously handicaps a boy even if it does not wholly unfit him for the test. Study hard through the session and then make up your mind to do the best you can in the final examinations, and let it go at that. You surely do not put your brain in a clearer condition by worrying.

In a written examination be sure of one thing—that you understand the purport or meaning of each question before you begin writing on it. In any of the speculative subjects it is frequently possible for the examiner with the best intentions to ask a question the exact meaning of which is not clear, and you may write a long answer to a question which was never intended to be asked.

It is a good time now to study the art of expressing yourself clearly on paper so that there shall be no possibility of misunderstanding what you mean. Learn to make use of definite terms and state your ideas in the fewest possible words consistent with clearness. If you are to write subsequently for our dental journals—as I fully hope you are—then the best time to begin your preparation for such work is in college. But remember this one profound fact in this connection:

Before you can write clearly and definitely, you must learn to think clearly. You cannot convey to paper an idea which is vague in your mind. What our profession most needs is a body of young men who have developed the thinking habit, and the ability to properly express their thoughts.

Here's hoping that you will have success in your freshman examinations, and that your vacation between freshman and junior years may be a very pleasant and profitable one.

Cordially yours,

THE PRECEPTOR,
C. N. J.

BOOK REVIEWS.

A MANUAL OF PHARMACY FOR PHYSICIANS. By M. F. DE LORME, M. D., Ph. G. Lecturer on Pharmacy and Pharmacology, Long Island College Hospital, New York. Second Edition, with 19 illustrations, 199 pages. Price, $1.25 net. Published by P. Blakiston's Son & Co., Philadelphia.

This book as its title implies is intended particularly for the physician and the medical student, and yet it contains much of value to those dentists who are in the habit of putting up their own preparations and who require a knowledge of properly combining medicinal agents. No dentist should prescribe extensively for patients without a thorough knowledge of the essentials of prescription writing and this the present volume attempts to teach in a very creditable manner.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. New (2d) Edition, Revised. A Text-Book of General Bacteriology. By Edwin O. Jordan, Ph. D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Second Edition, Revised.

Octavo, 594 pages, illustrated. Philadelphia and London, W. B. Saunders Company, 1910. Cloth, $3.00 net.

The subject of bacteriology is one which becomes of increasing interest the more we study the manifestations of disease. The dental practitioner should be familiar with this subject, and while the present volume is intended more for the medical practitioner and student than for the dentist, yet it is so practical and so readily understood, and it contains so many valuable suggestions that it will be found of equal interest to all who are in any way connected with the healing art. Professor Jordan has presented a volume which will well repay careful study and we commend it to medical and dental students alike.

DENTAL SURGERY AND PATHOLOGY. By J. F. COLYER, L. R. C. P., M. R. C. S., L. D. S., Dental Surgeon to Charing Cross Hospital and the Royal Dental Hospital. 1,000 pages, 890 illustrations. Price, $7.00 net. Published by Longmans, Green & Co., London, New York, Bombay and Calcutta.

This is the third edition of the well-known work "Diseases and Injuries of the Teeth," by Morton Smale and J. F. Colyer. The book covers a wide range of subjects, so wide indeed, that all of the subjects cannot well be treated in detail. The author has attempted to condense his chapters into the smallest space and in some instances has seemed to dwell too briefly on important subjects, but this must be considered preferable to unlimited padding. Two chapters in particular appeal to us, the one on "Variations in the Teeth," and on "Defective Formation of the Teeth." These contain some very instructive matter and are exceedingly interesting. Some of the illustrations of abnormalities are unique, and will well repay a careful examination by those interested in this subject. The author has labored faithfully to present a noteworthy addition to our literature and the publishers have carried out his ideas in a praiseworthy manner.

PRINCIPLES AND PRACTICE OF CROWN AND BRIDGE WORK. By Hart J. Goslee, B. S., D. D. S. Third edition, with 1,141 illustrations. Pages 600. Price, $5.00. Published by The Consolidated Dental Mfg. Co., New York. 1910.

The profession is already quite familiar with Dr. Goslee's most notable work through the medium of the first and second editions, and it is safe to say that the reputation of the author will be greatly enhanced by the present volume. As he states in his preface to the third edition the time seems propitious for a revision of the work owing to the introduction of the casting process. He has added a very important chapter on this subject which is especially timely and which will appeal to every student and practitioner who is interested in this new process. One of the most noteworthy features of the volume is the number and excellence of the illustrations. There seems to be no detail of construction omitted from either the text or the cuts, and whether as a guide to the student or a suggestion to the busy practitioner the book will prove of the greatest value in every-day experience.

Dr. Goslee has been a voluminous writer for years, and this work seems the fitting culmination of his long experience as a practitioner and a contributor to our literature. He leaves the profession under deep obligation to him for his painstaking effort to present to it the very essence of the subject upon which he treats. The publishers have coöperated with the author in preparing a book of the highest typographical and mechanical excellence.

CORRESPONDENCE.

NEW YORK LETTER.

My Dear Mr. Editor:—

The Second District Society of the State of New York whose province is Brooklyn and practically Long Island—"come across the bridge"—as we say here in the island city—old New York proper—when those from out of town come into the—old—city for any particular purpose. Brooklyn, Staten Island and the Bronx are *Greater* New York, you know. The particular purpose and particular reason why the Second District Society came—across the bridge—upon this occasion was to secure better attendance for their star performer, Dr. Taggart of Chicago, because now that tunnels under the East River bring their crowds from Brooklyn and Long Island and the Pennsylvania and other tunnels carry passengers under the Hudson River, and the New York Central railroad still has its passenger depot in the old spot—Forty-second street—is the hub of the Western universe. The greatest hotels and caterers of this western world are all within a few minutes of this hub. The Second District Society made no mistake in coming to New York. They secured a larger attendance than they would have in Brooklyn and were able to accommodate at the banquet a larger number.

Dr. Taggart gave a very interesting clinic on the afternoon of December 12th in an unoccupied loft on Fifth avenue near Forty-seventh street. He was on a platform in the middle of the room and used giant models in describing a method of procedure, so as to secure positive results in the manipulation of all the parts that go to make combination procelain and metal crowns. Also his technique of procedure in securing an impression of the parts of the assembled metal waxed together, so as to unite, by his system of casting, was most interesting. Although the clinic was instructive there was some disappointment that Dr. Taggart did not follow up this technique by having such a case as he so beautifully described, prepared and ready for casting. There is *much* instruction needed on this point. There are at least several in New York who possess casting machines who for one reason or other have not been able to secure uniform results.

Although there was a goodly number at the clinic, very few expected to see such a turnout as responded to the call of the society for the evening meeting. But they have a very live man as president this year—Dr. Ottolengui—and no doubt he has injected some of his energy into his corps of workers, at any rate all eyes are directed toward Brooklyn just now.

Through the regular announcement of the society a request was made that all who could would attend a smoker at Delmonico's at 6:30 that evening which was to honor Dr. Taggart. It was to be informal and to precede the paper of the evening—by the honored guest. More than three hundred responded which is an unusual thing for even New York. Interjected between the dinner and the serious matter of the evening were several vaudeville artists of the soubrette type which though unique and pleasing in a measure, distracted.

The affair assumed the aspect of a banquet and indeed the spirit of the occasion was so like it that those who were called upon to discuss the paper after its reading seemed to regard it as an occasion to drift into encomium and to revel in reminiscence rather than discussion.

President Ottolengui in his introductory remarks said that the reason for coming to New York was that we are all one society, meaning the several separate organizations hereabouts.

Dr. Wm. H. Taggart was then introduced. He received the greatest ovation I have ever known accorded to any essayist at a meeting of the kind. A good dinner, among good friends may have helped the enthusiasm.

Dr. Taggart seemed very much impressed, for he remarked, "the enthusiasm seems to come from your hearts—it goes to mine." The title of his essay was the "Scientific Casting of Gold."

He told us that there are about 30,000 dentists casting some of their fillings. "This principle must have been right." "Thousands of those who are casting are not doing it according to any scientific law."

There was so much that was magnificent in Dr. Taggart's paper that I am sorry that I cannot quote much more of it, but can only give you an extract here and there. One is: "What right has anyone to say that Miller and Black are wrong until they have disproved them by knowledge gained?"

He spoke of cavity preparation according to Dr. Black's recommendations—and of course believes it to be the only thing.

"Ninety-five per cent of preparation of cavities could be better done with stones than burs; stones do away with the tendency toward undercuts."

Speaking of the wax used for getting cavity models: "It must be of such character as to break before bending when cool." He made about 1,150 tests before he secured what he wanted.

Dr. Taggart then introduced an automatic electric wax heater which operated by a delicate thermostat which caused the contact to be made and broken upon the slightest variation of temperature.

Its principle was a glass evaporating dish filled with water as a wax holder, an electric bulb, 16 c. p., with carbon filament, and a reflector suspended over the dish so as to throw the heat downward. The advice was to start the wax heating when beginning to prepare the cavity.

Thin watery surface to wax induces shrinkage. His advice about heating up the investment for the purpose of casting was: "The temperature should never be higher than to melt out the wax. A hot flask means an expanded flask and means an expanded whole. Always allow the flask to become cold. A cold flask resists the pressure from within. He said, "The mixing of investments must be done with mathematical exactness," and he has devised a special apparatus which alone can give uniform results. He has determined upon a correct proportion of water and powder by weight and showed special apparatus for determining that, having a delicate spirit level so as to avoid going wrong. The rule of thumb will never do in any detail of the procedure by those looking for scientific results. Another automatic device—mixer—was brought forward. A thin investment allows air to escape better. His method of mixing gives plenty of time for the correct handling and painting of the wax inlay with the investment material. It will remain liquid for ten or more minutes.

His automatic plaster mixer transmits a rotating eccentric joggling motion to the cup which is attached to an arm of the machine, and upon each revolution a jarring effect is given which shakes the air bubbles into eternity. The whole is operated by clock movement which is set to run a given length of time, cuts itself off, on the plan of the Snow vulcanizer regulator, and starts an alarm bell which notifies the operator, who by this means does not have to watch the process but can busy himself otherwise.

The heating of the investment before casting is done by the step method. The process of burning out the wax takes about fifteen minutes.

Particular stress was laid upon the use of pure gold in casting. He contends that the use of impure gold is the cause of many failures, as the gases given off from the molten mass causes blow holes.

The brittleness of clasp gold is due to the absorption of silicon from the investment. For bridges, etc., one may use coin gold. To superheat flask defeats the object sought. The carbon that remains after heating to drive off wax leaves gold and platinum in best possible condition for welding.

As to the casting itself—there is only one way to do it right and that is to automatically control the process.

Dr. VanWoert was called upon to open the discussion. He likened him to the wizard of Menlo Park—Mr. Edison—saying he was the wizard of the dental profession throughout the entire world.

He spoke of Dr. Jenkins and porcelain fillings—saying that he felt that there was something more in the cemented filling than we had understood.

When he heard of Dr. Taggart's experiments he went to Chicago and got what he wanted. "I don't want anything better than a cemented filling."

"I have been censured for using the term dynamics but you must take that into consideration in forces as well as mechanics. They are the essential points. No one in the room has taken it more into consideration than the essayist."

The metallurgical feature must also be a consideration.

"The cast gold filling is the greatest boon that ever came to us."

"I will never put in another gold foil filling."

Dr. Van Woert brought in reference to silicate cements and warned those who were pinning any dependence upon them to beware. They have their place but only as temporary fillings. Gold foil was the foundation upon which American dentistry was built but it has outlived its time.

Dr. Gaylord of New Haven said that he was absolutely incapable of expressing his feelings as to what Dr. Taggart's work has been to him by following his methods. "Today he comes laden with far greater treasures than he did four years ago."

Dr. Goslee of Chicago had accompanied Dr. Taggart to the East and was one of those present and called upon. He reminded us that he "had been with Dr. Taggart upon three other occasions and with you I am awed at the master work of this wizard."

"You have seen upon these three visits only the possibilities of this man. You don't know what might be in store for you."

Dr. Thos. P. Hinman of Atlanta was present too and made complimentary remarks about the essayist.

Dr. Frank Bliven of Worcester, Mass., said that since Dr. Barnum (who brought out rubber dam) there has never been anything to equal Dr. Taggart's contribution to dentistry.

Dr. Ashe of Brooklyn felt assured that only since he has been making cast gold fillings has he felt that patients were getting what they were paying for. But he has never felt satisfied that he was going to get uniform results.

Dr. Tompkins of Utica spoke to some length on the heating of flasks the shape thereof, and Dr. Fred Nies of Brooklyn uses a tapered flask and heats his flasks hot. By such method, he claims, can he get positive results. The gases have an opportunity to escape and the investment is held secure.

Dr. Lane of Philadelphia pleaded for the standardizing of technique as a whole.

Dr. Ottolengui spoke of Dr. Taggart's special investment material without which correct castings could not be made and it develops that the material is not procurable. Dr. Ottolengui believes it is worth all the rest of the outfit.

Dr. Chayes of New York likened himself to a Mohammedan—"I have been to Mecca." In his lauding of Dr. Taggart he said: "I knew what I was getting because I was willing to take what the master had given me. I know it is safer, saner and better to put in Taggart inlays than gold fillings. Never before has crown and bridgework been so well done as since this process. It was a physical impossibility with the blow-pipe."

Dr. Taggart in closing said he had tried to avoid the commercial side of the question. "This is a scientific subject" and he has endeavored to treat it as such. Before criticisms of his process of casting are made he feels that his instructions should be followed.

The day following the meeting first reported the First District Dental Society held its forty-second anniversary meeting at the New York Academy of Medicine, where Dr. Eugene S. Talbot read a paper entitled "Developmental Pathology: A Study in Degenerative Evolution." Many lantern slides were used to illustrate the paper which endeavored to establish fixed laws for all deformities of the body, including the head, face, nose, jaws and teeth.

The essayist said it was the result of thirty-five years of research work and that he knew of no place where he would rather have presented the paper.

He described developmental pathology at best as diseased pathology and went further to say that pathology itself does not mean disease.

It is the introduction of a new function requiring a readjustment of previous dominant factors. Physiogomy and ontogomy were also treated of. Pernicious anemia is a reversion to embryonic state, also hereditary neurosis.

His claim is that the structures of man are greatly influenced by environment. The muscles of the ear, appendix, little toe, nose and bones of the face are illustrations.

In the development of structures, the brain precedes other structures in order to preside. If otherwise the structures of the body became abnormal, changes that take place *during* development are those of evolution, those which take place *after* are in line with involution.

Interstitial gingivitis and caries he spoke of as hastening degeneracy.

There is a constant struggle going on between organs on account of structural changes.

As an illustration of ontogeny—he made the assertion that uric acid is normal in reptiles but abnormal in mammals.

When evolution takes place in an organ, part of it may disappear; when evolution takes place in an organism—the whole organ may disappear.

One statement made by the essayist appealed to me very forcibly. "The simplest form of life is practically mortal. In man, mortal or somatic cells die, the reproductive perpetuate." One can expand this statement and made it fit the theory of reincarnation. The ameba does not die. Life goes on continually by division.

Amphioxus lanceolatus is the lowest form of life. In the human development, not only do his tissues but all organs pass through all stages of phylogeny from the lowest to the highest forms.

Dr. Talbot spoke of a period of stress which is when some tissues are developing while others are passing.

He said the unstable nervous development in parents (tired out generative or reproductive organs) are the cause of abnormalities due to excesses.

Where constitutional fevers occur it always means the arrest of development or growth.

It is possible for any structure to stop growing. The ear grows throughout life.

The pineal body in the brain was once an eye. The alveolar process is the most easily affected of any part of the body.

As an illustration of arrest in development in phylogeny, the doctor asserted that epithelial cells are found in the alveolus, which cells were intended to develop more teeth than thirty-two. Tendency of teeth in disease is to go back to phylogeny. Professor Stein of the New York College of Dentistry, Dr. Stanton and Dr. Bogue were those to discuss Dr. Talbot's paper.

At the December meeting of the Union Counties Dental Societies of New Jersey which occurred at Elizabeth in December, Dr L. C. LeRoy of New York was essayist. "The Practical Side of the Pyorrhetic Question" was the subject of his discourse. He stated at the outset that the object was to divest the subject of as much of the hypothetical as possible, dealing with it from the time the patient presented getting the history of the case, forming the prognosis, establishing diagnosis and treatment of the disease; the care of the case before, during and after surgical treatment, laying particular stress upon the surgical. Dr. LeRoy showed to the society a set of instruments which are entirely original, patterned on lines entirely different from anything heretofore shown.

They are slender enough to be introduced into the deepest pyorrhetic pockets. They are devised to reach *beyond* the deposits without mutilating the tissues or causing undue pain or by being impeded by the alveolus. It is an instrument that dislodges while pushing but is operative also on the return stroke. It assists rather than interferes with the sense of touch, strong and rigid to answer all requirements for delicate work. The instrument is effective as well when moved laterally.

Dr. LeRoy described it as a dental plane with a serrated under surface. These serrations are more valuable in dislodging—crushing—calculus on the pull stroke than is the chisel—at the base of pyorrhetic recesses.

Quoting some from his remarks: He said "the greatest weakness is in the man." That condition could be overcome only by first having the courage of one's convictions that pyorrhea alveolaris was curable, then by years of patient perseverance in the development of a technique, technique of the highest and most finished order—which develops a sense of touch probably only exceeded by the blind.

Another "greatest weakness" was in the instrument, "My observation as well as experience is that the operator procures instruments and then proceeds to adapt himself to their structural peculiarities. He feels that they are inadequate from the beginning but—he struggles along thinking that the weakness must be in him. If there had not been remarkably good men behind the guns, the instruments would not have made the record. If nature had failed as many times to bridge the gap as did the instruments half of humanity that has been treated for pyorrhea would be edentulous."

Dr. LeRoy quoted from Johnson's Operative Dentistry that "It is extremely important in all operations involving the gingival tissues that the rope-like border surrounding the cervix of the tooth be not severed or mutilated. It recovers slowly and is seldom reproduced like the original."

It has been proven quite conclusively that the most important element in the treatment is the removal of *all* adhesions, and it has further been proven that instrumentation is the *only* way to accomplish this. To do that properly is the crux of the question.

The essayist said that gingivitis was not pyorrhea yet pyorrhea had its inception in that form so that it was vitally necessary to seek for these incipient irritants and have all surfaces smooth.

Because most dentists fail in this responsibility is one of the causes of the grave conditions we are called upon to treat.

Teeth that are loose enough in their sockets to be rotated with the fingers may be regarded as past redemption—except that they may be utilized in splinting, if that procedure is thought advisable.

But judgment must be exercised. Some seriously affected cases come under our observation which evidence such constitutional resistance to the disease that there is no immediate further danger by retaining those teeth for a few days longer. Other cases apparently not so generally affected, present indications so alarming when constitutional conditions are considered that one is warranted in recommending immediate extraction.

Dr. LeRoy operates under the influence of a germicide all during an operation: to reduce the possibility of infection 25 per cent argyrol is his favorite.

Compressed air sprays and saline syringing are also in frequent use.

Another feature of importance, original with him so far as known, is an auxiliary full set of instruments the same forms as those shown for pyorrhetic operations but with all parts smooth, which he uses as burnishers for smoothing all those surfaces which have been surgically gone over. Since the devising of the auxiliary set he has noted greater improvement than from any other feature.

Granular tissue he pointed out is extremely vascular and delicate and the better we prepare the root surfaces—the more polished the root—the more perfect the healing.

Dr. C. S. Hardy of Summit, N. J., in discussion was in a quandrary as to whether pyorrhea was a disease of the oral cavity or was it a symptom. He believed it to be the latter and that most all our ails were brought about by auto-intoxication. He cited several cases that would seem to indicate this.

Dr. Woolsey of Elizabeth deplored the use of instrumentation because if the periosteum was destroyed the gum would not reattach itself to the tooth again.

Dr. Eaton believed that everything depended upon proper instrumentation and eternal vigilance afterward—and before it should be said.

Equal parts of iodine and creosote was his favorite remedy.

Yours truly,

"The Boroughs."

PRACTICAL HINTS DEPARTMENT.

Edited by J. E. Schaefer, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, The Dental Review, 55 State street, Chicago, Ill.]

To Avoid Nausea:—To avoid nausea when taking a plaster impression, instruct the patient to grasp the nose with the thumb and finger, *forcing* them to breathe through the mouth. Not very graceful, but will do the business.—E. R. Annis.

A Neat Gutta-Percha Filling:—After removing wax model for gold inlay, in large compound cavities, in molars or bicuspids, and previous to inserting inlay, fill almost full with temporary stopping and then place a veneer finish of small pieces of base plate gutta-percha, which you can have already cut.—E. S. Best, Minneapolis.

A Useful Receptacle for Gutta Percha:—As a matter of convenience, have in your cabinet two small glass jars with metal covers, such as are used by the druggist for holding ointments. In one of these have pieces of temporary stopping of different lengths and in the other have base plate gutta-percha, cut in the shape of a square or diamond of various sizes.—E. S. Best, Minneapolis.

Grinding a Sensitive Tooth:—When I want to grind a sensitive molar tooth and the patient can not stand the grinding pain, I take a knife-edge stone, make many notches on the occlusal surface of the tooth with interrupted touches of the stone and then I break those notches down with a heavy edge stone with less pain.—*M. H. Diratsouyan, Oklahoma City, Okla.*

Gutta Percha for Root Filling:—I keep pink base plate gutta percha in a small, wide mouth bottle, softened with eucalyptol to such an extent that the addition of a very little chloroform occasionally, and gently warming it when needed, will liquefy it. This in connection with gutta percha points makes to my mind an ideal filling. Do not use oil of eucalyptus, however, which is very irritating to the peridental membrane.—R. G. Joslin.

How to Clean a Barbed Broach:—A good way is to pass the broach, back and forth, through toilet paper, perforating it each time and repeating this process until the entangled pulp-tissue has been removed.

If the tissue has become dried and hardened, and adheres firmly to the broach, the removal of the same may be facilitated by first soaking and softening it in water.—S. Kobe, senior student, C. C. D. S.

Lower Impression Trays:—Strange to say after all these years of dental practice there are no suitable trays for the great number of flat, narrow jaws. In fact the great mass of lower trays are illy constructed. The very deep flanges, all around are in the way. The deep flange on the buccal side at the heel is entirely in the way. They are usually too deep over the lingual fraenum.

But for the flat cases there should be no flange on the buccal side, except in a few cases, and on the lingual side very little and none over the fraenum.

I have called the attention of dealers to the subject, but no results.—L. P. Haskell.

Painless Extraction:—To make first insertion of needle in tissue painless, place point of hypo under free margin of gum, place finger on tissue over the needle to constrict it, and force in a small amount of local anaesthetic. By injecting both lingually and labially (or buccally), and massaging with thumb and forefinger toward the apex, and repeating about twice, allowing fifteen minutes for the above operation, the tooth may be extracted by a careful side to side or rotating motion without pulling, and absolutely painless.—H. Acton Roan.

Red Paint:—There are several kinds of red paint. This article refers to the kind that is indispensable in dentistry.

When you are fitting a shell crown and it is being held away from the perfect fit you wish, and must have, anoint the inside of the shell with red paint, try it on the root and you will see exactly where the trimming is to be done. Sometimes it is imperative that we set a porcelain crown at once, grinding the base of the crown to fit the end of the root "Red paint" will show you just where to trim to make a perfect joint.

After we have cast the gold attachment and are fitting the porcelain to it ready for cementing, we find that many times it is being held up by some tiny defect—anoint the porcelain surface with "red paint," try them together and we can see readily where the correcting is needed.

Dental red paint is made by triturating powdered red lead in vaseline. This article will not dry up, is odorless, has no taste, is easily cleaned off, and is inexpensive.

To clean red paint from the surface (which must be very perfectly done), wipe off with a pledget of cotton, then with a bristle cleaning brush (which has perhaps seen better days), placed in the engine and used with dry whiting or calcium phosphate, all trace of dental red paint is quickly removed.—C. E. Allen, Chicago.

MEMORANDA.

NEWLY ELECTED OFFICERS OF THE ST. LOUIS SOCIETY OF DENTAL SCIENCE.

President, S. H. Voyles; vice-president, J. P. Marshall; treasurer, E. J. Lenzen; curator, J. C. Gault; secretary, Val. H. Frederich. Executive committee: Edward E. Haverstock, C. O. Simpson, G. H. Westhoff, J. C. Gault, C. S. Dunham.

DR. J. P. GRANNIS IS DEAD.

Dr. Grannis, of Colorado Springs, Colorado, is dead from pneumonia at the age of 61. He is the man who was instrumental in giving the Cripple Creek District to the world through grubstaking the discoverer R. Womack. As is the case in most instances of the kind, neither the benefactor nor the discoverer profited much by the enormous wealth taken from the district.

MASSACHUSETTS DENTAL SOCIETY.

The forty-seventh annual meeting of the Massachusetts Dental Society will be held May 11, 12 and 13th, 1911, Hotel Somerset, Boston. A most interesting and instructive program has been arranged. Progressive practitioners of dentistry residing in the State of Massachusetts, who are not members of the Massachusetts Dental Society, are cordially invited to membership.

Charles W. Rodgers, *Secretary.*

ODONTOLOGICAL SOCIETY OF NEW ORLEANS.

At the annual meeting of the Odontological Society of New Orleans, held on January 11, 1911, the following officers were elected to serve for the ensuing year:

E. L. Fortier, D. D. S., president; St. Clair Duke, D. D. S., vice-president; Alfred A. Leefe, D. D. S., secretary-treasurer. Executive committee: F. H. Field, D. D. S., chairman; T. J. Wingrave, D. D. S.; E. B. Ducasse, D. D. S.

ALFRED A. LEEFE,
Secretary.

CHICAGO DENTAL SOCIETY.

At the regular meeting of the Chicago-Odontographic Society, held December 20th, 1910, in the Chicago Public Library Building, the name of the Society was changed from the Chicago-Odontographic Society to the Chicago Dental Society; and the following officers elected for the ensuing year, President, G. W. Dittmar; Vice-President, G. N. West; Treasurer, F. E. Roach; Secretary, T. L. Grisamore; Librarian, E. D. Coolidge; Board of Directors Elected, R. Beck, L. F. Bryant, L. E. Bake, J. F. Smith; Board of Directors now stands, R. Beck, G. M. Gallie, 1 yr.; A. D. Black, L. F. Bryant, 2 yrs.; J. P. Smith, L. E. Bake, 3 yrs.; Board of Censors, P. B. D. Idler, Chairman; H. C. Piesch, A. M. Hewett; Organization Committee, W. H. G. Logan, Chairman; F. W. Gethro, R. J. Cruise, T. L. Grisamore, Secretary.

EXAMINATION OF DENTISTS FOR THE ARMY.

The Surgeon General of the Army announces that he intends to hold examinations to establish an eligible list from which appointments to the Dental Corps will be made as vacancies occur.

Applicants for appointment as Dental Surgeons in the U. S. Army will be authorized to present themselves at the nearest military post to their homes at which a Medical Officer is stationed, for exomination as to physical qualifications for employment, and those found physically qualified will be invited to report at Columbus Barracks, Columbus, Ohio, or Fort McDowell, Angel Island, California, early in March, 1911, for the professional examination. No allowance can be made for expenses incurred in undergoing these examinations.

Application blanks can be procured upon application to the Surgeon General of the Army. The essential requirements to securing an invitation are that the applicant shall be between 24 and 30 years of age, a graduate of a standard dental college and shall be of good moral character and habits.

Army dentists are employed under a three years' contract at the rate of $150 per month; are entitled to traveling allowances and suitable quarters; they have the privilege of purchase of supplies at the Army commissary. The hours of official duty are from 9 a. m. to 4 p. m., although they are subject to emergency calls. During other hours they are permitted to treat persons not entitled to gratuitous services with their own materials..

THE ANNUAL CLINIC OF THE G. V. BLACK DENTAL CLUB OF ST. PAUL.

The Annual meeting will take place at St. Paul on Feb. 16th-17th, 1911, at the old State Capitol. The operative clinic is in the hands of the members and friends of the club and as in the past it will be along the usual lines.

Doctors Searl, Finn, F. S. and C. H. Robinson, F. S. and W. D. James, Gallagher, Fawcett, Woodbury, Conzett, A. D. Black, Crandall, Beemer, Clack, Richardson, Rawlings, G. D. and W. H. K. Moyer, Yerke, C. N. Booth, Jones and others will make operations.

Dr. E. T. Tinker of Minneapolis will make a cast gold inlay operation.

Dr. C. L. Topliff, of Decorah, Iowa, will be present and prepared to demonstrate his method of removing impacted third molars.

TABLE CLINICS.

These demonstrations will be in the hands of Drs. C. N. Johnson, F. B. Kremer, O. C. Zieger, C. A. Hintz, C. P. Peterson and a number of other men yet to be heard from.

It seems only necessary to say that Dr. J. B. Ridout will demonstrate on both days of the clinic to have the usual interest awakened in what he may do.

At this writing (Dec. 20th) it is not possible to speak of the essayists beyond saying that on Thursday evening, February 16th, Dr. G. V. Black will give an illustrated lecture and Dr. C. N. Johnson will lecture Friday, February 17th. There will be several other gentlemen who will also read essays.

As all available space has been taken by thé exhibitors there surely will be such a display of the newer things as to interest everybody who attends the clinic.

The profession of the U. S. and Canada is cordially invited to meet and take part with us. For all information address, Dr.. R. B. Wilson, Sec'y; American National Bank Building, St. Paul, Minn.

THE

DENTAL REVIEW.

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FILLING TEETH WITH GOLD.*

BY DR. J. V. CONZETT, DUBUQUE, IOWA.

In making a filling that is to possess any degree of permanency there are three fundamental principles that are to be observed. First, there must be a proper cavity formation. Second, the filling material must have inherent properties of permanency, and third, the filling must be properly inserted.

The rules for the formation of the cavity are practically the same no matter what the material may be that is to compose the filling. The principles that Dr. G. V. Black laid down are classical and must be observed if the best results are to be obtained. He divides the preparation of the cavity into four steps.

1st. Obtain the outline form.

2d. Obtain the resistance form.

3d. Obtain the retentive form.

4th. Obtain the convenience form.

The outline form comprehends the doctrine of extension for prevention. This doctrine which was so strenuously fought by a large portion of the profession, is today the generally accepted principle for the formation of the outline form, but while all profess to extend their cavities into the territory of relative immunity to decay, experience shows that very few operators have a proper conception of the proper position to lay the margins of their cavities, so I may be pardoned the presumption of bringing to your attention an emphasis of the doctrine of extension for prevention.

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*Read before the Northern Illinois Dental Society, October, 1910.

I believe that the promulgation of that doctrine has done more for the salvation of teeth and has done more to prevent the failure of fillings than any thing that has ever been brought to the attention of the Dental profession. In a word, the doctrine demands the extending of the cavity margins so that the finished filling will have its cavity margins in territory that is relatively immune to decay. These territories are the portions of the tooth that are habitually kept clean by the excursions of the food in mastication by the movements of the tongue, cheek and lips, and that portion of the tooth that is covered by healthy gum tissue.

In order to know just where this territory lies in the case under consideration, there must be a careful study of conditions, and here I may, by way of emphasis, say that the study of conditions must always precede the making of any operation. All cavities are not alike, all teeth are not the same, all patients are not cast in the same mould, neither are all teeth placed in the arch in the same position, therefore the filling of all teeth by routine without thought or intelligent study of the conditions involved in the individual case will make for a very large percentage of failures even if the general system of the operator is excellent.

So in laying out the outline form, there must be in the mind of the operator a clear picture of the result that he is to obtain in the finished filling. The general condition of the patient's teeth should be observed that he may know whether there is an extreme susceptibility to decay or whether there is a fairly immune condition. If the patient is young and it is apparent that it is going to be a fight to preserve the teeth from the ravages of decay, the margins must be laid well into clean areas, if the patient is in middle adult life and the condition of the teeth manifest a fairly immune condition and the teeth are well cared for, it will not be as necessary to extend as far as in the first case. But in all cases the margins of the filling must be clear of the approximating tooth and in such a position that they can be easily kept clean. Because we know, thanks to the labors of Black, Miller, and Williams that caries is caused by a micro-organic invasion of the tissues, and that the beginning of decay is caused by the organisms fastening themselves upon the surfaces of the teeth and protecting themselves by a gelatinous membrane under which they are able to carry on their work of destruction. We also know that these gelatinous membranes cannot form where there is friction upon the surface of the tooth. For that reason we will find the beginnings of decay on the proximal surfaces of the teeth just above the contact point where the organisms can place themselves and be protected from the excursions of the food in mastication. We also find it in susceptable cases near the gingival margins, because the curvature of the tooth occluso-gingivally is such that the food misses the gingival portion of the tooth with its frictional force when it passes over the tooth in the act of being crushed. We also find the beginnings of decay in the imperfect pits and fissues on the occlusal and buccal surfaces, places that in themselves would be immune, but by reason of an imperfect development of the tooth the organisims have access to the dentin and are protected by the overhanging enamel so that unmolested they can carry on their work.

Knowing these things we know that unless we change the conditions that made for the primary decay, we will sooner or later find a recurrence of decay around our filling. In extending our enamel margins then, we must carry them buccally and lingually far enough out of the embrasures that the margins will be self cleansing, far enough upon the occlusal surface that the margins will lay on smooth territory beyond all pits and fissuers, and far enough gingivally that they will be covered by healthy gum tissue. For, to again quote the master, "decay never takes place under healthy gum tissue."

The outline form also comprehends the esthetic form, for the appearance of the filling is dependent upon the form we give to our margins. We should be artists as well as mechanics, and it is our duty and should be our pleasure, to make our fillings as beautiful as possible. The highest art is to hide art, but in the case of a gold filling that is not always possible, indeed is rarely consistant with tooth preservation, and frequently the hiding of the gold defeats the end of beauty, for in the incisors, in proximal cavities, if the gold is not brought to the surface labially, it will look like a black line in many instances and will look worse than the appearance of the gold itself. Angles should always be avoided in the outline form, for curves are more beautiful than angles. Therefore all angles upon the margins of the cavity should be softened by gently curving them.

The resistance form is that form that is given to the cavity that will tend to resist the forces that have a tendency to displace the filling. In order to properly understand the form that we are to give our cavity that it may properly resist the forces that will be brought against it, we must, of necessity, know the amount and the direction of the force, or forces that are to be applied. Again we admonish you to study conditions. We know that there is a great difference in the gnatho-dynamic force of different individuals, one man will exert a force of from 250 to 300 pounds to the square inch while another individual will scarcely exert a force of 100 pounds. It would, obviously, be foolish to lay the foundations of a cavity as deeply and broadly for the last case as for the first. Observe the teeth, and the attrition upon their surfaces, the size and apparent strength of the masticatory muscles, and in that way, without recourse to the Gnatho-dynometer you can get a fairly good line upon the amount of stress that is to be laid upon the finished filling, and can lay out your resistance form accordingly. Again, we know that masticatory force is not all exerted in any one direction, so that a filling in one position will receive a far larger amount of force than a filling placed in some other position in a tooth in the same mouth. We know that as the mandible closes upon the maxillary, that it does so in a movement from behind before that is in exerting the crushing stress the mandible comes forward and upward, therefore the stress is received upon the mesial surfaces of the upper and the distal surfaces of the lower teeth. It is therefore necessary to be more careful in obtaining a proper resistance form for cavities in the mesial surfaces of upper, and distal surfaces of the lower teeth than in the opposite surfaces of the same teeth. In mechanics we know that the best possible surface to obtain to resist force is the flat surface, and the same truth holds good in the art of filling teeth. A flat seat is the form to give a filling to resist the forces of mastication. The best form for a filling is flat seats and parallel walls. Make the cavity as nearly box shape as the exigensis of the case will permit. The seats should be broad and deep enough to offer a sufficient bulk of gold to the force brought upon it, but in cases not requiring great resistance it is bad practice to cut as deeply or as broadly as for a case that requires resistance to great masticatory force. No filling material is as well tolerated by the pulp as the dentin, so the more dentin we can leave in a tooth and the less filling material we can place in it consistant with tooth preservation, the better for the health of the tooth.

The retentive form is that form that is given to the cavity that will tend to resist the forces that have a tendency to pull the filling out of the cavity. In the old systems of filling teeth it was thought necessary to depend upon pits and undercuts for the retention of the filling, but in the modern cavity preparation all pits and deep undercuts are done away. The flat seat and parallel walls advocated for the resistance form is all that is usually necessary for the retentive form. We know the dentin is very elastic, and if a filling is malleted into a cavity with sufficient force to wedge the gold into the cavity and exert some considerable pressure upon the dentin, the natural elasticity of the dentin will cause it to give under the stress and then exerting its force upon the reaction, will so hug the gold that it will be impossible to dislodge it with any force short of one that would rupture the tooth. The only place that a pit would be permissible would be in an angle of the cavity where the operator expected to start his cohesive gold, and wished a convenient point to start. This pit should never be deep, only enough to catch the first piece of gold and hold it while the operator was preparing the following pieces.

The convenience form is that form that is given to a cavity that will make the introduction of the filling more easy and therefore more certain. It is impossible to drive gold around a corner, and it is therefore necessary to so shape the cavity that the plugger point will have direct access to all points of the cavity. The convenience form is not the same for all operators, one man will find that a cavity of a certain form is easily filled by him, while the same preparation would be impossible for some other operator. The only rule that can be given in that case is for the operator to so shape the cavity that it can be easily filled by him. No matter how perfect may be the cavity preparation if the filling is not perfectly adapted to the walls of the cavity, in only one place, in time the filling will fail by reason of the one vulnerable spot. Therefore it is obviously better to sacrifice any portion of the tooth that will prevent the operators perfectly filling it, rather than to attempt to save it and thereby fail to make a perfect filling and in time by reason thereof lose the whole tooth.

The preparation of the cavity is not complete without the beveling of the cavo-surface angle. The enamel rods are placed upon the dentin, conforming to the general direction of the dentin the rods standing on their ends. But while this is true in general it is not always true, and can only be determined by their action under the chisel, so that the rods in every case must be studied separately. But whatever their direction they must be beveled entirely around the cavity, that no short rods will be left to fall out and endanger the future usefulness of the filling. This bevel is obtained with chisels hoes, and gingival margin trimmers, which are specially adapted for the purpose. It is not advisable to form the cavo-surface angle with stones or sandpaper disks, for two reasons, first, because a good angle is not as well obtained in that way, and second, because gold is not as easily adapted to a polished surface as it is to a planed surface, such as is left by the action of a chisel.

The filling material must possess within itself permanent properties. Gold, amalgam, tin, and to a certain extent gutta-percha, possess the quality of indestructability, but as we analyze the properties of all of the other materials we will find that gold is the material best adapted to the purposes. And when I say gold I mean the foil. I do not wish to appear as antagonistic to any other material, for I believe that each material and every method has its strong points, and in its special field serves a purpose that can be filled by no other material, but within the scope of a paper necessarily limited it will not be possible to enter a discussion of the relative merits and special indications for the use of the various materials. Suffice it to say that in the opinion of your essayist there is no material that so perfectly fills all of the conditions demanded for a permanent filling material as gold foil.

The filling material must be properly placed if it is going to fulfill the purpose of a permanent filling.

Gold, while it is the best material at our command, is not an easy material to perfectly adapt to all portions of a cavity, and for that reason we see so many failures of gold fillings. A gold filling that is not perfectly adapted to the walls of the cavity, is a failure from the moment of its insertion. Because the point of the failure of adaptation allows the fluids of the mouth with its contained organisms, to penetrate into the tissues, and a beginning of decay immediately commences. It is for the reason that the average practitioner sees so many of his gold fillings coming back to him with a recurrance of decay, that has caused the tremendous stampede for every new method or material that is going to displace gold foil. But with all of the difficulty of its use admitted, there is no doubt that a proper understanding of the physical characteristics of gold and of the laws governing its use, will enable any man of average ability to make perfect gold fillings. Gold as a filling material comes to us in several forms. As a foil, in which it comes as a cohesive, and a non-cohesive foil and in the crystal form. There are many makes of crystal gold for which the makers claim great things, but all such claims must be taken with a little caution, for the crystal forms require just as much care and as much mallet pressure to obtain results as does the foil.

Non-cohesive foil is the gold that was used by the pioneers of operative dentistry, and they became very expert in its use and obtained some very good results. When the cohesive gold was introduced to the profession, however, the profession in its delight with the new, forgot the good points of the old, and the use of the non-cohesive gold fell into disuse. In these latter days, however, it is being again used in an increasingly larger degree because its excellent points are beginning to be understood by operative dentists. Gold, in its pure state is naturally cohesive and to be made non-cohesive must have some substance deposited upon its surface that will prevent the natural coherance. It is found that a number of gases will serve this purpose, and in practice it is usual to make use of the fumes of ammonia gas, which condensing upon the surface of the gold foil, renders it non-cohesive until it is expelled, which can be accomplished by the application of heat. It has also been observed that certain substances depositing upon the surface of gold render it permanently non-cohesive, and some manufacturers have taken advantage of this property to make a non-cohesive foil that cannot be made cohesive by annealing. For the reason that there are certain substances that render gold foil permanently non-cohesive, and because these substances, in the gaseous forms, are about our operating rooms, and operating cases, it is advisable to protect the foil that is to be used as cohesive foil from contamination by these substances. For if it is so contaminated, it will, to the extent of such contamination, become non-cohesive, and the portion of gold so contaminated being incorporated into a filling will make a weak spot there and the filling will break or flake off at that point at some future time. The method that has been advised to protect the gold from contamination as to coat the surface of the gold with a film of ammonia gas. This is done by manufacturers of the so called soft foils, and in order to keep the foil in this shape all that is necessary is to keep the gold in a compartment in which a small dish is contained in which a little aqua ammonia is kept. The ammonia is volatile and upon the annealing of the gold preparatory to placing in the filling the ammonia is dissipated, and the pure surface of the gold is exposed and a perfect cohesion is thereby obtained.

Non-cohesive gold is the most perfectly adaptable form of gold and can be more easily adapted to the walls of a cavity than any other form of gold, by reason of its non-cohesiveness its use is entirely different from the method of using the cohesive foil. It must be so placed into a cavity that its various particles will be wedged into place and not have to depend on the cohesion of the gold to hold it into place. It is used in cylinders and ropes. In the cylinder form a portion of a sheet is folded into a ribbon of the required width and this is then rolled upon a broach into a cylinder. These cylinders are made in ¼, ½, and rarely a cylinder is used in which a whole sheet of gold has been incorporated. These cylinders are used in the gingival thirds of fillings in the proximo occlusal surfaces of molars and bicuspids, in fillings in cavities in the occlusal surfaces of molars and bicuspids, and in any large cavity that permits of the box form of cavity preparation. In use, in the gingival third of a cavity in the proximo-occlusal surface of a molar or bicuspid, for instance, a cylinder is placed in the linguo-gingival angle, another one in the bucco-gingival angle, and then another cylinder is forced in between these two cylinders and the whole mass wedged to place. After the placing of the non-cohesive foil in these positions, the cohesive foil is built up on and over the non-cohesive foil, being anchored into the step in the occlusal surface of the tooth.

In using the non-cohesive foil in the occlusal surface of a molar or bicuspid, the cylinders are placed on end around the walls of the cavity and then cohesive gold is malleted into the center of the filling forcing the non-cohesive foil against the walls of the cavity and making a cohesive wedge that prevents displacement of any of the gold. After the gold has all been placed the entire mass is thoroughly malleted to place and a very dense and resistant filling is thus obtained.

In the manipulation of cohesive foil there are a number of laws that must be carefully observed in order to have any degree of success. The property of cohesiveness makes it a more difficult material to perfectly adapt than the non-cohesive. If too large pieces are used without great care there is danger of bridging over air spaces thus leaving a vulnerable spot in the filling that is not observed. One of the greatest difficulties that is encountered is owing to the fact that the gold in the annealed form is soft and that it is tempered by malleting. Now if in its soft form it is placed in the tooth and malleted and is not in perfect contact with the walls or margins of the tooth and further malleting is done to force it to place we will find that it is of no avail, for the first malleting has tempered the gold and made it springy, and no further amount of force that we can place upon it will send it to place. In order to avoid this difficulty, the gold must be placed just where it is wanted and the mallet force must then be applied in the proper direction so that when the malleting is completed the gold firmly hugs the walls of the cavity. In order to do this the direction of force must be always toward the walls of the cavity and never away therefrom, the plugger should be held at an angle of about 45 degrees with the wall of the cavity toward which the gold is being forced. In placing the gold it should be placed where wanted and then commencing toward the center of the cavity, the plugger point should travel from the center toward the wall of the cavity in an orderly sequence of steps. That is the plugger point should be lifted after each double blow of the mallet and should then be placed about three-quarters of the diameter of the plugger in advance of the place where the last blow was delivered, upon reaching the wall of the cavity and the gold thoroughly malleted against it, the plugger should now be lifted and carried to the center of the cavity again and the process of stepping toward the wall of the cavity be again carried out. Never mallet a piece of gold away from the wall or margin for if that is done the gold is drawn away from the margins, and a leak will be the result.

The question of condensation is a most vital one, and must be carefully considered if we are to obtain the best results. A gold filling that is not perfectly condensed contains a large per cent of air spaces, which makes the filling spongy, and the result will be that these air spaces will absorb moisture and contained organisms and will ultimately fail. If you will take the next filling that you remove from a tooth and that has not a sufficient density, and will hold it over an alcohol lamp you will see the contained filth carbonize and go off in smoke, and if you rub the filling in your fingers before burning out you will have olfactory evidence of filth present.

A gold filling must have a density of at least 14 specific gravity to be of any value as a tooth saver. There are some men that may be able to obtain a sufficient density with hand pressure, but they are few and far between. The best way to obtain density is by mallet force. There are a number of mechanical mallets upon the market with which those that are adapt in their use may and do obtain fair results, but after a good deal of experimentation your essayist has discarded all methods in favor of the hand mallet in the hands of a competent assistant. The size of the plugger point is a very important factor in the condensation of a filling, for we know that the blow that is delivered upon the surface of the filling is inversely proportional to the square of the diameter of the plugger point. So that we can readily see that if we use a large plugger point the force of the blow must be so very much greater to obtain the same result that a moderate blow would give with a plugger point of small diameter that it would be prohibitive, and the result is that men who habitually use large plugger points are not obtaining good condensation. The plugger should be as straight as consistant with convenience, because a point that deviates much from the straight line will spring under the force of the mallet and consequently the full force of the blow is not delivered upon the gold but is taken up in the spring of the instrument.

No matter how well a filling may be made, how perfect may be the cavity preparation, how well the filling may be condensed, if the contour of the tooth is not properly reproduced, the inter-proximal space preserved, or reproduced if it has been lost, the filling is not a success and will not give the patient the comfort that he has a right to expect and demand. I have very frequently removed fillings for no other reason than that the contact point had been so poorly made, the filling so poorly contoured that the patient was in constant misery every time he ate fibrous food. In order to obtain the proper contour there must be a separation in order to restore the portion of the tooth that has been lost by the process of decay, this space may be obtained in any way that suits the operator, either immediate with the separator, or previous separation by any means that he may prefer. In cases of very great loss of the mesio-distal diameter it will take considerable time to restore the necessary space, but it can be done if the operator perseveres. It may be necessary for the patient to wear a gutta-percha plug for months before it is accomplished, but the result will more than compensate for the trouble. The filling should be finished as perfectly as possible making a contact point that knuckles against the proximating point with the least amount of contact possible. The contact point should be a point and not a plane. All the lines of the filling on the proximal aspect of the tooth should slope toward the contact point, this will leave the embrasures well out of the area of danger and if properly done will give a good interproximal space. In presenting a paper on this subject it has been necessary to condense so very much that it has not been possible to amplify any part of the subject and a great many things that I would like to have said have of necessity been left out, and that that has been said has been written in such a labored style as a result of my attempt at brevity that I feel that an apology is due the long suffering audience. Of one thing I am sure, I shall never again attempt to compass the whole field of the making of a gold filling in the confines of a single paper.

ISN'T IT PATHETIC?*

BY DR. JAMES W. CORMANY, MT. CARROLL, ILL.

I would like to plunge right into my subject, but I must make a little explanation as to what led me up to speak upon such a subject and why I do not take the more practical side of dentistry and talk about that.

I cannot recall a single paper that I have written for this or for any other society upon subjects like these; "The Gold Inlay," "The Gold Filling." "The Amalgam Filling," "The Cement Filling," "The Beeswax Filling." "The Spearmint Gum Filling," "The Spruce Gum Filling." "The Cotton Filling," "The Beefsteak Filling," "The Rice Filling," "The Bread Crumb Filling," "The Microbe Filling," "The Tobacco Chewers' Filling," or any other kind of filling; but I did write a paper once for this Society upon the subject of "Prosthetic Dentistry" and I have been sorry ever since. Its title was, "Get the Case if You Can, Make a Fit if You Can, Get Your Pay if You Can." How is that for a title?

I think it necessary that other subjects than operative and prosthetic dentistry should be brought before this body. We need encouragement along other lines, a mental stimulus, if you please, and while the title of this paper sounds a little pessimistic I'll show you before I get through that I am as far away from that as the east is from the west.

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*Read before the Northern Illinois Dental Society, October, 1910.

I trust my paper is timely for we hear quite a little these days of the dissatisfaction existing among the fraternity caused, no doubt, by the great desire for wealth, more wealth, more coin, more of everything good, bad, or indifferent. And this leads me up to my subject.

What I am about to read was taken from the *Dental Brief*, and reads as follows; I presume addressed to the editor:

"Isn't It Pathetic?"

"My Dear Sir:—Do you think I could get you to help me out personally? I have done some advertising in the past in the newspapers, but it does not seem to help.

"There are eight dentists here in a town of 7,500, and three of us are old dentists. I have been located here for thirty years and have met with success until the last year or two. I can see that my business is dropping off in spite of my best efforts to keep it up.

"I find that I am not the only old-fashioned dentist that is wearing out; the other two older men here are on the same road, and they are good dentists. In the past six months I have had three old dentists from different parts call on me, and they said, 'We have sold out: we had to because we saw the wave coming.' And I asked how? And they said that they saw most of the dentistry was among the young people, and they would go to the young dentist even if he were not any better or did poorer dental work than we do. And I know here the people seem to think that the young man just ground out of the mill is the man. They are getting the business and that is the size of the case.

"Without doing any advertising except a card in the papers, I took a P. G. course at ———————— three years ago, and it did not do much good. If I could sell out my city property here I would take a new location, even if I am past the 50-year mark. A man does not like to sit around his office and see the other fellow getting the business. So you can see where I am. What can be done? Please let me hear from you on the subject.

"Yours truly,
"F. H. S."

Let us take up this case and see what is the cause of this man's troubles. Let us ask him a few questions. What have you done in the thirty years you have been a resident of that city? Have you been an honorable, upright citizen? Have you played to the better element of your community? Have you kept your hands out of dirty politics? Have you howled for personal liberty, that a man may do as he pleases regardless of the welfare of his neighbors? Have you tried to help the rising generation to better things than booze, Sunday desecration, disobedience to law and order?

I ask these questions. I want to know what kind of a man he is in his city.

"I find that I am not the only old-fashioned dentist." Old-fashioned dentist. Why are you the old-fashioned dentist? Is there anyone to blame but yourself? Are you one of those that proclaim. the no breakfast plan for me, and then, if I don't eat breakfast I can bum around as much as I please at night for I don't have to get up early for breakfast. I don't eat breakfast and Ill just stay abed as long as I please. I'll get to the office on time alright. Grant that he does as to the office hours, alright, but the assistant has been there. You lounge into your expensive office some where about the middle of the mornig; you fiddle around the chair a few hours; go to lunch; and leave for the day early in the afternoon, and wonder why you don't succeed.

I mention these things that he who listens to my voice may sit up and take notice.

Why are you the old-fashioned dentist? Have you kept up with the times? Are you a member of your local dental society? Your district dental society? Your state dental society? Have you attended every meeting in each of these societies? Have you given any clinics or written any papers for your home or state society? Have you participated in the discussions of papers of either home or state societies? Have you ever asked another dentist whom you considered way up in the business when he arose to explain a certain piece of work, how a particular part was done, or were you afraid to expose your ignorance? Have you found out anything good for you and for the other dentist as well, and taken it in to the society meeting and told the whole push all about it? Or have you kept it to your own measly self?

I call your attention to these things that he who reads may ponder.

You are an old-fashioned dentist if you do not take a vacation. You will take some kind of vacation either voluntary or involuntary. You old-fashioned dentist, you are taking your involuntary vacation now and the worst of it is you will never get back. You know what a vacation does for you? The best advertisement. People talk about you; how prosperous you are; how hard worked you are; just had to take a rest; he's a fine dentist but works too hard; glad to know he's taking a little time off.

I like my vacation all at one time rather than a run away vacation, a day here, two days at another time. When you are at home, be at home; when away, be away. I like the month of August best, and the whole month. Last year I took two months, this year six weeks. Don't tell me you lose business by it. I do just as much business when I am away a month or two as when I used to stay home all the time, and I think more.

"And I took a P. G. course." "Hully Gee," what's that? Oh, I know. He went to the city and spent $50.00 for a course, and $50.00 for board and room, and $100.00 bumming around and left his wife at home making excuses for his not being at home when $25.00 would have taken him to the state society meeting and the $100.00 would have given the whole family a vacation and made everybody happy.

"If I could sell my city property I would move to another locality." Why? Is your bad work coming back to torture you? Can't you make that upper plate stick without hurting? Can't you stop that jumping up and down of that lower plate? Are you still charging fifty cents for amalgum fillings, and, gold one dollar up? Are you the same dentist you were twenty-five years ago, without any improvement? If you are, no wonder the up-to-date dentist is getting the business. And you sold out because you saw the wave coming, and you let it come. A dentist fifty years of age and no business. Preposterous! Where is the trouble?

The questions I have asked will give you some idea of what I think about it, and I think the gentlemen who are selected to discuss this paper will add something more.

It is not necessary for me to say to you that I am a firm believer in the text, "As a man thinketh in his heart, so he is."

All of us carry around in our heads ideas of some kind, good, bad, or indifferent. I want to tell you what kind of thoughts to hold and what kind will prevent just such conditions as poor Dr. F. H. S. complains about.

Most people have three kinds of troubles. Those they have had; those they have now; and those they expect to have. The latter are the kind that give the most uneasiness. As for me, I dropped the past and my intimate friends know that I had many; and as for me now; look at me, do I look like a man filled with sorrow, a man carrying a heavy burden, a man down and out? Not on your life. And right here before I forget it. Don't let me hear any of you boys that are now about the thirty-year mark make such a howl twenty years hence. If you have no sand, take some.

The one needed mental attitude is self assertion and self reliance. When one relies upon himself he will express himself and will declare, "I can." Oh, the need of this faith. Emmerson's "Self-Reliance" should be the text book in every home. From the cradle up, one should be taught, "I can." This is the real text of life every young person should learn, and realize to trust thyself. Oh, ye sick, weak, unhappy, and discouraged, listen to the call. Hold the thought of health, strength, happiness, and prosperity, and let this be your motto, "I shall ask, I shall receive, I shall give."

"Who asks not, the chambers are darkened
Where his soul sits in silence alone.
Who gives not, his soul never harkened
To the love call of zone unto zone.
Who prays not, exists, but he lives not.
A blot and a discord is he.
Who asks not, receives not and gives not,
Were better drowned in the sea.
Oh, the asking, receiving, and giving
Is the soul of the life that we live;
All the beauty and sweetness of living
Is to ask, to receive, and to give."

DISCUSSION BY DR. M. R. HARNED.

Dr. Cormany has given us a characteristic paper, just what we would expect from our smiling countenanced, good feeling, rotund, "Sunny Jim." Full of sense, faith and helpfulness. He need make no apology for presenting a paper on something other than a strictly technical subject, and when it comes to a practical subject, how could one be chosen that could be of more vital importance than how to avoid arriving at the pathetic situation wherein Dr. F. H. S. finds himself—that is if he F. H. S. really is—as bad off and despondent as he thinks himself to be.

The sermon the author preaches to young dentists, taking this incident as a text, is timely and will be useful to each exactly in proportion as it is absorbed and acted upon by him. But how about he of the pathetic incident, wherein does he finds the desired information, the magic word or touch which shall change him from a failure to a success? Unfortunately he can not go back thirty years, to the time he started to practice and thus profit by this advice and he is too old to get thoroughly into the civil, social or political life of his community if he has failed to do so previously.

To be sure, there is the advice of a Cormany, "to believe in himself, to assert himself, to ask, to receive, and to give." It is along the line of this thought though in more homely language, that the point may be made that Dr. F. H. S. probably has a serious attack of the blues, perhaps caused by an over indulgence in eating pork. If that be the case 'tis no wonder it has affected, not only his health but his pocketbook also.

I believe dentistry is a profession for the young man and that it is principally filled with young men, and probably it always will be so.

What per cent of elderly men do we see at dental gatherings? From 1 to 10 per cent possibly, and this proportion will about hold good throughout in active practice.

The active money making period in the dentists career is from 25 to the 50th year in his life, and at the latter age he need not expect in the natural order of things, that his individual earnings are to increase year by year as his practice should have been doing many of the years previously. It is well that it be so, for he would have scarcely the time nor energy to attend to it were it otherwise.

The majority of dentists at that age have and should have, other things which require some time and attention, and which either assist or are expected to assist, in producing an income. Orange groves, fruit ranches, farms or city property, gold mines, Mexican plantations, oils wells, or other kinds of present or future investments.

Many are more or less engaged in literary, educational, mercantile or manufacturing interests. At that time in life, he ought at least to have a home paid for, and if he has not been able to do that much he probably has been woefully deficient in ordinary business tactics.

Even F. H. S. has "city property," which he remarks may not be salable. Well, if it be not rentable either, why not raise potatoes upon it, if it be vacant lots? That would help some, both in occupation and income.

This appeal suggests considerably to me, that he is looking for assistance to come to him from the outside rather than from the inside, that is from himself. And yet, he would scarcely expect the editor of the BRIEF to go to his town and take the patients by main force from the crowded rooms of his young competitors and transfer them to his vacant chair.

He also complains that the young dentist just ground out gets all the business in his town. Strange what a difference there is in localities! I did not realize at the time—nor since—that I was doing all the business in the town the year after graduating.

To the majority of men who have been confined to the exacting nervous strain of the dental profession for 20, 30, or 40 years, there have probably come many thoughts of some avocation into which he would like to enter and spend the later years of his life; something broader, freer, further removed from the vexations of pleasing the public, and into which life may come more of God's pure air and sunshine, than is wont to enter into the ordinary dentists' apartments.

Therefore it is not strange that at 50 and 60 years of age so many get out of active practice, neither is it strange that there is a strong tendency on the part of the public to patronize the younger and more energetic.

Speaking about annoying troubles, some one has truly said, there are two kinds about which we should not worry, those which we can help, and those which we can't help. For we should remedy those which we possibly can and with Dr. Cormany forget the others.

Really it would not matter upon what subject Dr. Cormany started to write or speak, toward the end of his paper or address he would get right into this "sand," "can" and "believe" business.

I dare say the paper he wrote upon prosthetic dentistry, ended the same way. Well, it is all right too, inspiring to any one, no matter of what profession, occupation or previous condition of servitude. He is a very healthy appearing example of the effects of his own medicine.

A BUSINESS PHASE OF DENTISTRY.*

BY DR. B. H. BIGLOW, ROCKFORD.

Much has been published about the business side of dentistry, during the past year.

One dental journal has on the title page of a new issue: "The business side, 'the get-the-money' end will be given preference over the deep, theoretical material." Many of the writers seem to take the attitude that the getting of a big fee is about all there is to business side of dentistry, and some intimate that the fee is the ne plus ultra of dentistry. To this we cannot agree.

Dentistry is a profession and when degraded to "Jack-pot" methods of trying to rake in so many dollars, it ceases to be a profession.

One should gain a livelihood by his profession, but the profession should not suffer to increase one's income. The question of fees, of course, comes to us every day, but that is not the paramount issue. The old proverb by Benjamin Franklin, "Keep thy shop and thy shop will keep thee," is as true to-day as when first uttered.

The accounts and records of a detnal office I consider to be the real business side of dentistry. An important part of practice building is the keeping of such accounts and records in an accurate and intelligent manner. If not so kept they will lead to confusion, loss of time and patients.

Upon making inquiry as to the number of dentists keeping office assistants, in five of the large cities in this section of the state—Chicago excluded—we find about one in five. This large majority have so many office duties to look after that the book-keeping end is often neglected; therefore, a simple and systematic method of keeping office records is important.

Starting with the Appointment Card as the first record to be made. The appointment cards sent us by the various manufacturers of dental drugs may be allowable if one wishes that particular drug used, but to be more professional and business-like, a simple card with one's name, address and telephone number on one side; on the other side a line for the date and hour of appointment. There should be a few words at either the top of the card, stating that the appointment must be kept or due notice given; if at the top of the card, then at the bottom there should be a line, reading: "A settlement is required at the end of each sitting."

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*Read before the Northern Illinois Dental Society, October, 1910.

It is not necessary that the patient's name be written on the card. The card should be of a size convenient to slip into a ladies' purse or a gentlemen's vest pocket. Such a card states sound business principles to which no fair minded person can take offense. Be generous with your appointment cards, that is; see to it that each patient has a card every time, and you will find these cards a lubricating oil to your daily tasks.

Your Appointment Book, which is a twin sister to your appointment card, must be always at hand. One that can be carried in the pocket of your operating coat is convenient, for when you go to the 'phone or out into the reception room to make an appointment, your book is with you. It is well to have it in the form of a dairy showing the day of the week and of the month, so that one may look ahead, thus avoiding a mixing of dates. (Be sure to mark off time to go to the Northern Illinois Dental Society, the Chicago Clinics and other good things.)

An Examination Blank is a very necessary record, and if properly kept will save time, trouble and misunderstanding, both for yourself and your patient. Time was when a physician felt of the pulse, looked at the tongue; "looked wise" and called that a physical examination. Are we not guilty of a similar method of examining the mouths of our patients? The patient should receive a careful and thorough examination of every tooth, the articulation and occlusion and other conditions in the mouth, and there should note be made of same. The importance of a careful examination of the mouth cannot be over estimated, and, as it takes time, when once recorded it should be filed away until the work is finished, or copied in the dental ledger.

For this examination the card system is most convenient. The dental dealers keep these cards. The card is about three by five (3x5) inches, with a dental chart on one side; the other side ruled. These cards kept in a box of convenient size and equipped with index guide arranged alphabetically insure your having a reference always ready, and you can conveniently record the conditions as found.

The Dental Ledger is doubtless the most important of all of our records. These records should be so plain and clear that we can show them to our patients and they will understand them. You can often prove to your patient that it is not the filling that you put in last month which has broken out, and, more than that, it will make you feel proud and happy to see good fillings that are serving a useful purpose every day, and to know by looking at your ledger that they have been in for five or ten years. A loose leaf ledger will meet the requirements for convenience better than any other, but there are so many things that enter into the requirements of a good dental ledger that it is better to see one and examine it than to read about it, so this one is offered for your inspection. (Moore's ledger was passed about).

In years gone by, after trying various ledgers, both large and small in size and price, this one comes nearest to meeting all requirements for a good all-around ledger. The leaf has a good dental chart on it, the teeth are all numbered, and the prints are large enough to mark where the fillings are placed. There are a sufficint number of columns and are varied to meet all ordinary cases. The back of the ledger leaf is blank, so that one can make extra notes if necessary. Mistakes will occur in any system, but the plainer the record the less likely one is to make errors.

Therefore some definite method of marking the chart should be followed, such as gold fillings in solid black, alloy fillings in light lines, porcelain fillings in plain outline form. For extracting, mark "X" on the roots extracted, "C" on the teeth crowned, etc. It is better to have at least two of these ledger binders to start with; one binder for records that show work completed and paid for, the other for work in progress and unpaid accounts. The leaves are easily transferred from one binder to the other. Small metal markers come with the ledger; these may be used in various ways. A marker on the leaves which contain your unfinished work, you will find convenient, as you can thus readily turn to these items.

Following the ledger is the bill. When rendering a bill, do not give an itemized account, for it is so often misunderstood. Have the bill read: "For Professional Services" from date of starting to the date of finishing the work. A note at the foot of the bill should read: "A record of services rendered is kept at the office for reference."

Some dentists keep a record of dental materials purchased; this is a waste of time. Let the dental supply house do that, and you check the account. If you can find one house that will supply all your needs for the office, stick to that house, keep a deposit with them, and buy every-day articles in large quantities. Such accounts will be easy to keep, and the discount will be sufficient to pay for a little extra vacation each year.

If anyone here has a simple way to record such things, kindly let us hear from you. The suggestions offered in this paper are not all new or original, but, like the present day auto, they are obtained from various places, and assembled.

DISCUSSION—BY DR. A. M. HARRISON, ROCKFORD.

"A Business Phase of Dentistry" is a good subject for a dental meeting and Dr. Biglow has handled it in an intelligent and sensible manner. He doesn't treat it as "The Business of Dentistry" but limits it to "A Business Phase." He admits there is a phase of business connected with dentistry. There are some dentists who are so excessively ethical, so they claim, that they cannot endure the thought of business being mentioned in connection with dentistry. Have you ever met one of these who was able or willing to practice without compensation, or was even willing to let the patient decide and pay whatever he felt the services were worth?

I believe a young man beginning his practice should consider the value for time and money spent in gaining his education, office equipment, and running expenses in determining what should be the minimum fee per hour for his services. Every five years, as he continues to practice, his fees should be increased at least 25% because of increased efficiency and experience. He will have many patients for whom even a nominal charge would be unjust, these patients are entitled to and should receive just as careful services as those more fortunate financially. All things considered I believe the dentists do as much for charity as do physicians.

The essayist stated that "one should gain a livelihood by his profession but the profession should not suffer in order to increase one's income." Our ideas as to what amount constitutes a livelihood are likely to differ according to the tastes and habits of the various dentists. Moreover haven't you noticed that as our practice increases the luxuries of yesterday are very apt to be considered the unquestioned necessities of tomorrow? Benjamin Franklin's proverb: "Keep thy shop and thy shop will keep thee" is all right, but it all depends upon the way the fellow *keeps his shop*. With us it means that the dentist shall have prepared himself by mastering the theories and principles of dentistry;

that he shall have gained a reasonable amount of ability through practice while in College and this ability will continue to grow during his practice in proportion as he uses care and good judgment in every detail of his work at the chair and in the laboratory. In short he must be able and willing to "deliver the goods." Each of us is striving to build up and maintain a good practice, and we cannot do so without rendering honest and efficient services, and conducting our practice upon sound business principles.

I agree with the essayist regarding the appointment cards and appointment book. When a patient appears according to appointment the first thing to be done unless he is suffering some form of toothache is to carefully scale and polish every tooth. While this is being done he may be receiving the first lesson on the importance of prophylaxis, and the dentist will note the conditions and peculiarities of the teeth and surrounding tissues, and mark the location of each cavity with pencil upon his permanent record card, then when the cavity is later filled indicate its outline in ink and number it. You will find it easier than having separate examination blanks which must be looked after and copied upon another record.

The card index record is more satisfactory to me than any ledger I have ever seen; with it a complete record in a condensed form and easily accessible may be kept. The record drawer may be divided into three divisions each arranged with alphabetical markers; the first where the work has not been completed, the second where it has been finished but not all paid, the third when the account has been settled and the record put away for three, six, or twelve months when the patient is to return or if by agreement to be notified to come for prophylaxis and examination. The patient's name should be written upon your calendar pad so you will remember to write or phone him at the appointed date, the little patients will not need to be reminded. The dentist should also keep a cash book, the simplest form of bookkeeping being a single page ledger with double columns the first for expenses, the second for cash received. About once per week include the total for living and household expenses. It is not necessary to itemize either household or office expenses in cash book. When a patient makes a payment enter his name and amount on the cash book and record card, don't wait till the day's work is done. Remember our records must be carefully kept if they are to be relied upon, sometimes the patient will lie against them. Our records must be entered the same day the work is done or they will not stand as evidence in court. At the end of the month by adding these two columns of our cashbook we know whether we are living within our income. If not we need to give some thought to "conservation" of income, by pruning unnecessary expenses.

ROOT FILLINGS AGAIN.*

BY M. L. HANAFORD, D.D.S., ROCKFORD, ILL.

At the invitation of your program committee, I am to give you a few lines on the above subject, and I may add, Mr. President, that had that invitation not come somewhat in the form of a challenge, perchance another would be speaking to you in my place to-night.

Your chairman, in a letter to me, said "At the meeting of the Illinois State Dental Society, last May, you said that there had been no improvement in the filling of roots of teeth in the last ten years—I therefore, etc., etc."

Now I have come all the way from Rockford to say to you that I am a peaceable man, that I am not going to knock the chip off Dr. Bentley's shoulder, that as far as anything I have said in the past is concerned, I am willing to let bygones be bygones, but since Dr. Bentley thinks best to reopen the subject, a few inferences from the series of experiments referred to as to the exhibit, materials, technique, etc., may not be out of place.

The thought must have come to every one who saw the lantern slides of root fillings, at Springfield, last May: "Why do these cases in the hands of the better dentists, such as were represented in those experiments, give so little trouble in practice?" Would it not seem from the revelations there made that a comfortable, useful tooth, with a filled root, ought to be an exceedingly rare thing, whereas cannot every dentist "point with pride" to many such monuments to his skill?

In other words, if we have no failure, or, as one gentleman said, no failures in fifteen years with our present mode of practice, why bother about it at all—what's the use?

Now the proportion of well filled roots in those experiments, varied from about one-third in the ten-year old series to about one-fifth in the new series. Some criticism was made of the method of conducting the experiments at the time of their presentation at Springfield, by gentlemen who thought that more thorough work could be done in the mouth, then in the case of a dry tooth out of the mouth, on account of a more favorable moist condition, and the presence of vital parts surrounding the tooth.

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*Read before the Chicago-Odontographic Society, November, 1910

So, for the sake of those objectors, I propose that we concede in the first series, seventeen per cent, and in the second series thirty per cent, and say that perhaps fifty per cent of root fillings are relatively successful.

What do we mean by relatively successful? Freedom from pain for one, two, three, ten years? Are there not many teeth with filled roots which pass for successes, that could claim "partial disability," like a man with an injured and lame arm before an accident insurance company? We know that many teeth are relatively, or wholly comfortable for years, with no treatment, or indifferent treatment, and then, perhaps after twenty-five or even thirty years, (as in a case recently under my notice), give rise to violent and dangerous inflammations and abscess. What is success? (I don't like that term "relative success." I wish it were not necessary to use it.) I believe success in these cases should be interpreted to mean, *comfort and freedom from disease during the patient's life time,* and we ought not to be satisfied with anything less.

So I submit that with this definition in mind—it is a large claim for any man to make, and a large concession on the part of your humble experimentor to say that fifty per cent of root fillings are well done, and that, when you come to think of it, is not much to boast of.

To get after the other fifty per cent—the first step in the technique is of course access. This, in the six anterior upper teeth, the lower cuspids and bicuspids, the upper second bicuspids, lingual roots of upper molars and distal roots of lower molars, is sufficiently easy to offer no excuse for want of thoroughness, but in those not mentioned, especially the buccal roots of nearly all upper molars and the mesial roots of lower molars, the difficulties are great enough to enlist the skill and patience of any man.

Supposing the tooth to be sterile, a stiff, sharp, smooth broach may be forced in as far as it will go, followed with a reliable piano wire broach, with spiral barbs, with which debris may be removed, and the canal somewhat enlarged; then an application of "phenol sulphonic acid," which capillary attraction will carry as far as there is any opening, to be followed alternately with the smooth and barbed broach, until the end is reached, as may be known by slight sensation, or until a definite obstruction is met, beyond which it is impossible to go. Having succeeded in reaching the end with a broach, and cleansing the canal, or becoming satisfied that all has been done, that can be done safely, no further effort need be made to enlarge it, for here is the first lesson from the experiments; *given any opening at all, a fluid, or semi-fluid filling material may be made to go to the end of it.* This was proven over and over again—fine hair-like sinuous canals, and even abnormal microscopic foramena, running at right angles from the root canal to the peridental membrane, were perfectly filled.

This contradiction of the accepted belief, seems to be accounted for, if we recognize the part which capillary attraction plays in the operation, and also the fact that a small space is more readily filled solidly with a shrinkable material than a large one. If the smooth broach is wound with a few fibers of cotton, on which sufficient oil of cajeput, or eucalyptol is introduced to moisten the canal, and this is followed by gutta percha in thick solution (chloro-percha or euca-percha), carefully pumped in, to be followed by a cone in the usual manner; or better still, if a fine gutta-percha cone be dipped in either of the oils mentioned, and then carried on a canal plugger to the end, or as near as may be, then packed with a warm instrument, which will churn it into a semi-fluid state, adding more material from time to time, if needed, I believe the small canals will be well filled. But what of the large, easy (?) ones? Those experiments showed, not once only, but many times, large, straight canals perfectly open to the end, with fillings that failed to reach the apex by comparatively large fractions of an inch; others in which the end had been reached, were porous, shrunken masses of material, such as would serve no purpose whatever in excluding bacteria.

Were those operators over-confident, were they too easy? Perhaps so in some instances, and yet the lesson, as it seems to me is, that we must keep as far away as possible from a fluid material in the large canals. I don't believe white lead alone would be a good thing to calk a boat with, neither has gutta-percha solution, or any fluid material any place in large root canals, unless it can afterward be entirely got rid of, and its place taken by solid material.

It has been my practice for many years, to treat accessible canals of fair size by moistening well with the oil of cajeput, then introducing a small, short gutta-percha point, carrying it as near to the end as possible, then warming the plugger and churning the material into a pasty mass. This is followed by as many cones as can be got in and packed with a warm instrument. I will not say that I have had no failures in fifteen years, but for a much longer time than that I have had no occasion to make any material change in the method.

One of the best of the experimental fillings made in my last series, was in a long, straight, open canal in a cuspid tooth, and was done as follows: Canal moistened with cajeput, then cholo-percha and small gutta-percha points, one after another, until no more could be got in. Then a warmed, tapering plugger was pushed down as far as practicable, and another cone forced into the space so made. Technique not so different from yours or mine perhaps, but a technique in which the fine result emphasizes another, and my last point, and that is, that subtle, individual, "know how," which no one can teach, but without which the most perfect methods or materials are no better than wood, hay or stubble.

So I suggest to you three points. First—notwithstanding the good degree of success now realized by painstaking dentists, it is worth while to seek some means of greater perfection, since not more than fifty per cent of root fillings, as now made, are bacteria proof.

Second—Fluid or semi-fluid material is indicated in small tortuous canals, but should be used very sparingly, if at all, in large accessible ones. Much greater care should be exercised in filling large, open canals, than has heretofore been thought necessary. Third—While improved materials for filling roots are greatly to be desired, still, greater perfection in technique, which is possible, with materials now in use, would result in the permanent usefulness and comfort of many teeth, which otherwise would sooner or later become centers of infection and disease.

METHODS OF ROOT FILLING.*

BY A. D. KYNER, D.D.S., MOWEAQUA, ILL.

The filling that I made for the root filling test presented by Dr. Hanaford at the last state meeting, did not result in establishing a reputation that would merit the honor you have conferred upon me, which I assure you is greatly appreciated. But I take it that the chairman of your program committee was curious to know how that honeycombed root filling was made, so invited me to appear before you and go into more minute details. However, if curiosity prompted him, he will be disappointed because it is believed that a substance has been found that won't honey-comb. If it possesses other evils, they are not yet apparent and while I have some hesitancy in presenting the method before it has stood the test of time, at present, it possesses the merits of being a substance with which the ordinary dentist, with ordinary skill can fill all classes of pulp canals to the apex every time.

The idea was borrowed from Dr. Pruyn, who uses sandarac varnish followed by gutta-percha cones, I merely substituted gum candarac cones for the gutta-percha for reasons shortly to follow.

You remember in the above-mentioned test, there was one perfect root filling and about a dozen good ones. After Dr. Gethro had cast his discriminating eye over the good ones, he eliminated most of them. Any way the results were such that the facts ought to be suppressed from the general public. Other tests that have been made and the searching X-ray, has shown that imperfect root filling is almost the rule. That this operation is usually faulty even when coming from the hands of conscientious men, and it was with the belief that a better substance might be found than those heretofore employed, that work along this line was instituted during the past months, and the results will be briefly presented with honest convictions, born of experimental demontrations and a short practical application in the mouth. And I can assure you that if in the future, it is found that two per cent of failures results, you will be publicly notified and car fare returned.

The work of preparing pulp canals in freshly extracted matured teeth had not progressed very far before the high percentage of large open foramina was noted. These openings permitting a medium-sized broach to pass through without the sense of touch detecting the root apex as an obstruction. Of the teeth examined about one-half had these large open foramina. The clinical significance is apparent when the technique of making gutta-percha root fillings is considered. Dr. M. S. Rhein, after lubricating the walls of the canal with chloro-percha, selects a gutta-percha point of proper length, slightly smaller than the canal, introduces it into the canal, and condenses same with cotton tightly wound on a canal plugger, with hard pressure. Dr. Thos. Gilmer introduces into the canal, after first applying oil of cajeput and then chloro-percha, small gutta-percha points, one after the other until no more can be gotten in. Then forces a tapered plugger as far as practical and in this opening other points are placed and filling condensed solidly. Dr. John McGee first lubricates the canal walls with oil of cajeput and introduces a previously fitted gutta-percha canal point. Dr. J. P. Buckley, after lubricating the canal with a eucalyptal-menthol gutta-percha compound, introduces a gutta-percha point, pausing a moment if the patient flinches, and then gradually pushing the point to place. It will be noted that he shows considerable respect for the vital tissues about the root apices. From the hard unyielding nature of gutta-percha, it requires considerable force to get it to place and the large number of open foramina will not permit the operator exercising the proper technique owing to painful responses from the tissues about the apices. I believe this will account for many faulty gutta-percha root filling. From experimental tests made, certain conclusions were arrived at. That if the apices of the roots were colsed, more uniform results could be attained with chloro-percha than any other material—but it is not possible to properly condense it in the vital teeth. That better fillings are made where chloro-percha is used as the solvent before introducing the point, as it acts quicker and the chloroform is more easily eliminated. When an oil is used, more or less porosity results, as the oil acts more slowly and is difficult to dissipate. Its final elimination later, renders the filling less solid. That the antiseptic cements disappear in from three to six months, leaving nothing but a residue in the canals. That it is not as far from the floor of the pulp chamber to the apices of most roots as many operators seem to think and many punctured apical tissues result; that root canal reamers for dental engines should be employed only after the root canal has been filled; that fine barbed broaches should not be introduced into large root canals; and finally that the success of opening pulp canals depends on a wise selection of instruments and clinging to their handles should be a patient, persistent and a highly intellectual optimist. Such a person can open most pulp canals, and the following method will be described to fill them. My present definition of a root canal filling material is that it should be a semi-solid, resinous substance capable of being molded in the pulp canal with slight pressure, adhesive and remaining unaltered in the canal. As about everything under the sun has been employed in filling root canals, resinous substances are not new. A number of years ago (1894) Dr. White recommended balsamo del deserato and and later Dr. Callahan admits to the use of resin. Whether anyone ever had enough confidence in the merits of gum sandarac to put it in root canals I don't know, so if I am advocating a past failure, it is not known to the writer.

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*Read before the Chicago-Odontographic Society, November, 1910.

For filling large and medium pulp canals the following method is employed. After the canals have been made ready to fill, dry as throughly as possible and fill same with sandarac varnish, this should be thick enough to bead on the broach. Select clean gum sandarac crystals and triturate to a fine powder. To this powder add a sufficient quantity of sandarac varnish to dissolve the crystals and on a glass cement slab and strong broad spatula spatulate same until the mass has partly dried. The proper proportions of liquid and powder are shown when the mix is an amber color and not granular. Cleanse the spatula and roll mass into small cones, not over four or five millimeters in length, suitable in size for the case. Roll the cones on that part of the slab used for mixing as the roughened surface facilitates the procedure. Remove all excess of varnish in the canal as it is not desirable to re-dissolve the cone, as shrinkage would result from evaporation. The cone as used is solid gum sandarac and will dry without any perceptible change in bulk. Introduce a cone into the canal, you will be surprised how easily they go to place; with as large a canal plugger as will enter the opening, gently push the point as far as the plugger will go; select a smaller plugger that will reach well to the apex and with a gentle push and lateral motion, the cone may be moulded to the apex and condensed or pressed against the walls of the canal. Other cones are introduced and moulded in the same manner. In the largest canals the cones are introduced in the openings made by the plugger. In the medium sized canals it is usually possible to condense the filling solidly from the apex to the floor of the pulp chamber. After the canal is full, tightly wrap cotton on the canal plugger, moisten with water and press firmly on the filling. The water hardens the material and the filling may be made homogeneous throughout its entire length as the plugger will not puncture this hardened portion but transmit the pressure throughout the entire length of the canal filling. The pluggers used for this class of canals should be spring tempered and highly polished and during the operation should receive frequent cleansings. The large and medium-sized canals are not the ones that have given trouble. Clinical experience has proven that it is in the smallest canals that difficulties are encountered in opening and filling. Canals whose caliber have been lessened through secondary dentification are the ones that have given dentists most concern. But results have been obtained in opening these canals by using a Young's Aseptic Plain Broach, Style E, this is the smallest, plain, spring-tempered broach that I know of, followed by an extra fine short barbed broach. It is unnecessary to add that the barbed broach must not be rotated. After the canal has been opened and ready to fill, with a finger root reamer drill a funnel-shaped opening to a depth of about two millimeters. This can be safely done without losing the canal or making a false opening along the side. Dr. Abbott likened these canals to capillary tubes surrounded with moisture and demonstrated the impossibility of keeping them dry but for a few moments. Dr. Stainton accounts for the cheesy appearance of gutta-percha root filling in these canals and in the apical region of other canals to the presence of this moisture. The following method is used for this class of canals: Dry as well as you can and introduce varnish on the Young's Broach, on withdrawing it will be noticed that the varnish has been affected by the presence of moisture as shown by its yellowish opaque appearance; cleanse this off and try again and after repeating this procedure several times it will be found that the moisture has been gotten rid of by the varnish remaining clear. Pump the canal full and continue the operation for some time until the varnish stiffens. That is, you accomplish the same results in the root canal as you did on the cement slab by spatulation. Take the above powder and add sufficient quantity of varnish to make a thick paste. It is not practical to use the cones in these small canals as stiff as in the large ones. Now this is where the funnel-shaped opening comes in. Take a small quantity of the paste on a medium-sized Young's Broach and introduce into this opening and with as large a plugger as will enter condense into the canal. This is repeated until the canal is full. The reason that I say until the canal is full is that experimentally canals were filled by placing the sandarac cones in the openings and condensing same, not introducing plugger over two millimeters into the canals, and I take it that the same thing happens when the same technique is employed in a practical case.

Some advantages that may be claimed for the method is that if it is possible to fill the dental tubuli with sardarac varnish, one source of concern to the dentist is met, especially in putrescent conditions. Is adhesive and capable of being moulded in the pulp canal with slight pressure. No perceptible shrinkage occurs in hardening and from clinical experience pronounce it absolutely non-irritating as I have been free from pericemental trouble since its employment, five months ago. I would not recommend its use in a canal where a dowel pin was to be fitted at the time of filling the canal, unless the apical portion only was filled, because from the mouldable property of this substance already mentioned the preparation of the canal for the post would probably push most of the filling out through the apical foramina. Also in filling canals with large foramina, pressure ought not to be put on the filling for the same reason, flow cement over the floor of the pulp chamber.

This method has been employed in filling all classes of pulp canals for the past five months, and the only question of the success of the procedure is: What effect will moisture have on gum sandarac? We will get the answer several years from tonight.

MY WAY OF FILLING ROOT CANALS.*

BY E. H. ALLEN, D.D.S., FREEPORT, ILL.

This is the title that Dr. Bentley has given me to write upon. I am sure the doctor has large confidence in my ability to write on any subject, whether I know anything about it or not. This reminds me about the story of the boy in the ancient history class; he did not have his lesson. He was asked to tell what he knew about one of the Roman Emperors, who was what would be called a "bad man" in these days. The boy stumbled along, and then said, "Well, the less I have to say about that old cuss, the better it is for us all." So, perhaps, the less I have to say about root filling, the better it is for you who have to listen.

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*Read before the Chicago-Odontographic Society, November, 1910.

I want to say that though I differ with Dr. Hanaford and doubt very much the value of his experiments as a means upon which to base any definite conclusions concerning the filling of root canals of teeth, in the jaw, I must, in all fairness, compliment him for the work he has done along the lines as shown in his paper read before the Illinois State Dental Society, and in the paper he read before the Northern Illinois Dental Society some ten years prior. I believe every thoughtful dentist is doing better work in root canal filling than ever before, and all credit should be given Dr. Hanaford for this. But, as a matter of fact, in my opinion, I do not think the experiments have any value in determining how well, or otherwise, the average dentist is filling root canals of teeth that are in their natural environment. that is to say, in the jaw.

It is easier to well fill root canals of teeth in the jaw than root canals in old desiccated teeth, mounted in dry plaster of paris, which makes a most excellent sponge, accessibility not being taken into consideration. Dr. Kyner said as much as this, in his discussion of Dr. Hanaford's paper at the Springfield meeting. But as I had got an inkling of this fact, while trying to demonstrate a preparation of oleo-percha, for root canal filling, at the meeting of this society last January, I do not fear that I shall be accused of stealing any of Dr. Kyner's thunder.

At that clinic, I had some old desiccated teeth, and was trying to work the oleo-percha into the canals, but to my chagrin, the stuff would not go in very well, and by using eucalyptol copiously I did succeed in working the oleo-percha into the root canals, but the question was, where did all that eucalyptol go to, four or more times as much as would be required if the tooth was in the jaw. Why that eucalyptol was being absorbed by the dentin and cementum of that old dry tooth, and when that tooth is imbedded in dry plaster of paris, it will require considerable chloroform, eucalyptol, oil of cajeput or nearly anything liquid to soak it up. Upon this fact, I base my statement that Dr. Hanaford's experiments are not of great value in showing how well or how poorly the average root is filled, that is in its nautral position in the jaw.

The human body is largely composed of water. It will be seen then, that any experiments along the line of root filling should be conducted as nearly as possible in a condition like nature. I might mention proper moisture surrounding the root, and the natural temperature of the body.

I have before me two dried teeth, extracted long ago, one an upper molar, the other a cuspid. I soaked these teeth for forty-eight hours or so, then holding them in a damp cloth, opened into the pulp chamber and removed the remains of the pulp. In the molar I found that the pulp body had become hard by pulp stones or secondary dentin. By removing this I cleaned the canals and moistened them with cajeput, introducing some oleo-percha. I pumped it down or up as the case may be. It might be well to explain that this oleo-percha is not liquid but is like a thick paste, quite solid, but when the quantity used in a tooth comes in contact with eucalyptol, cajeput, or oil of eucalyptus, it becomes fluid like a thick syrup. Hot air from the syringe will hasten and facilitate the process. With a smooth broach the oleo-percha was pumped into the canal. This was then followed by gutta-percha cones small enough to not require much force to send them into place, then use hot air and "push."

The procedure for the cuspid was the same except eucalyptol was used instead of cajeput. I do not notice any difference in the working or effect of the two oils. This oleo-percha provides an excellent pathway for the gutta-percha to slip to place.

With the result that canals of molar and cuspid are *well filled,* as well as anybody ought to expect to do.

Well, what of all this? Think of the thousands of dentists who are filling hundreds of thousands of root canals every year, with all degrees of success or failure. He is a brave man who tells us that considering the results of Dr. Hanaford's experiments, "Why fill roots at all?"

I tell you, gentlemen, that we are really filling roots better than we know, and we may stand out from under the indictment that we have had no progress in the last ten years. Before many moons shall have waxed and waned, I confidently believe that I can, by placing a tooth in a condition as closely approximating nature, prove that a root well filled with gutta-percha and oleo-percha is the rule, not the exception.

I regret that I had so short a time to prepare this paper, and that I could not go farther with my experiments. I am thankful to the committee for the invitation, and for your forbearance and kind attention.

PRESIDENT'S ADDRESS.*

BY W. V.-B. AMES, D.D.S., CHICAGO.

Mr. Chairman: I was given to understand that the report of the Committee on Dental Clinics in the Public Schools was deferred from the last meeting to this, and I was glad to be requested to take up that subject in the little I will have to say. I would not have known what else to treat of, because I would not be at all equal to the task of delivering a president's address dealing with the usual "glittering generalities."

I have been very much interested in this movement, and have tried to keep somewhat in touch with it in a practical way. Any ideas I have on the subject are not advanced from philanthropic as much as from practical points of view. As I have studied this question, the practical side of it always appealed to me.

I have taken occasion to keep in touch with the people who have had most to do with it, and, as near as I can make out, we have to give the credit for the early steps in this movement to such men as Drs. Richard Grady, Samuel Hopkins, J. P. Corley, Alphonso Erwin and Frank W. Stiff.

Judging by the reports of examinations made both in this country and abroad, under supervision of such character as to leave no doubt of their substantial accuracy, it would seem that oral hygiene more than any other is the instrument to be employed in the conservation of health in the young. Is there any other branch of conservation that government, municipal, state and national, can more profitably engage in? The endowment of nature is such that, without undue handicaps, most children will develop with sufficient vitality to give them even chances in the struggle for existence. The handicaps are the result mainly of ignorance and carelessness; they are becoming more perfectly recognized, and more effectively reckoned with.

But oral hygiene has disclosed to the public, and has more definitely impressed on conservators of the health of children, the fact that oral imperfections and diseases form a handicap which, if unheeded, remains through life. These oral ailments afflict nearly all children, and in advanced stages they affect practically all the functions of the physical system. Permanent impairment of vitality in so large a percentage of children as is indicated by the reports mentioned is a serious factor to reckon with from an economic and industrial viewpoint, and is equally important in considering the military force of the nation.

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*Read before the Odontological Society of Chicago, Nov., 1910.

The most expensive thing in the world is ill-health. Winners in the world-struggle, national as well as individual, will naturally be those who are the most vigorous. Intellectual force has always distinguished physical superiority. The country which, through wisest attention to health conservation makes its people superior in endurance and strength has a corresponding advantage in the race for supremacy. It will of course have higher producing efficiency, the soundest citizenship, and the greatest national security.

If these are platitudes, nevertheless they can not be too often repeated so long as anywhere from 50 to 90 per cent of the children in the public schools, varying somewhat with locality, are growing up under afflictions of the oral cavity which result in permanently impaired health and retarded mental development.

In this connection I have taken occasion to quote from some early writings based on the work in the schools in Germany, where they make such statements as this: "That material and physical efficiency of school children can be greatly aided by the proper care of the mouth and teeth. This is fully attested by experiments in Germany which cover a wide field. The dental infirmaries have been in operation for a sufficient length of time to demonstrate first, that the time expended in putting the teeth in order was far less than the time formerly lost from toothache and disability caused by diseased teeth. Second, that the cost of keeping the teeth in order was more than compensated for by better health, and a consequent reduction in medical expenses. Third, that the children become physically stronger, secured higher averages in their studies, and were easier to control, and apparently happier."

The above is taken from the writings of Dr. Woodbury, of Boston.

I have also consulted Dr. Ebersole, from whom we have heard much latterly on this subject. Dr. Ebersole has given a report of the work carried on in Cleveland, not so much through the Committee on Oral Hygiene of the National Association as through an earnest but self-constituted body of men in Cleveland. As a result of their work they were able to go to the national meeting at Denver and present a respectable report. From Dr. Ebersole's latest rport I am able to quote as follows:

"I presume I have over 200 applications for lectures, printed information, and data coming from men interested in oral hygiene all over the country, which I am unable to supply for two reasons. One is that the material at command is not all in shape for publication, nor are we ready to publish anything until we have finished our work at Marion School, and have the facts ready to present in full, showing the actual value in dollar and cents of dental service. The second is, that when this material is obtained we have no funds to publish it and print the lectures and other material of general interest to the newly-created disciples of oral hygiene.

"We are accumulating quite a little data and information, together with lectures, newspaper articles, etc., which will be of great value when properly prepared for distribution. Many of the state and local organizations are lining up to work in co-operation with the National Association. Two weeks ago in Milwaukee the Board of Education, following an interesting meeting in that city, instructed their chief medical inspector to appoint a dental inspector on his staff, and stated that they would increase the number as necessity demanded.

"I am arranging at the present time the installation in one of our largest cities in the United States a campaign similar to that which has been carried on in the Cleveland public schools, with this difference in plan, however, that instead of the dentists who are doing the work in the clinics being appointed by the Board of Education they be appointed by and become a part of the Department of Health. I have the endorsement of the Health Commissioner, who says he will appoint the men; I have a statement from some of the members of committees of the dental societies that they will be able to furnish the men to make the examinations, deliver the lectures, and man the clinics. It remains for them to organize their men for this purpose, and receive the endorsement of the societies. I have been in touch with the public school authorities of the city, and individual members of the Board have expressed themselves as being in favor of such a campaign. There, as here, the national committee hopes to furnish for a period of one year equipment for four clinics, together with materials necessary for the work. The Health Commissioner of this city has asked for an appropriation to install dentists in the public health department, but feels that he needs some such campaign as we have planned to enable him to get what he wants in this line. I do not give full details in connection with this because it is as yet too early to make any definite statement as to what can be accomplished in this connection."

I want to say that while Dr. Ebersole was chairman of the Committee on Oral Hygiene of the National Association they had an ambition to accomplish certain results in Cleveland, and the Cleveland men contributed as much as could be expected of them in service and money. And yet they cut out for themselves a work in which they were very much handicapped for want of funds. The National Association had authorized at the most an expenditure of $200 for that purpose, which was a mere bagatelle. It happened that through other sources the Cleveland workers were able to secure from some allied interests in the work there, assistance to the extent of $4,000 ready cash, and several thousand dollars in the way of equipment during the part of the year previous to the Denver meeting; and they were enabled thereby to go to the Denver meeting with a report that could not but command attention. As a result of this the National Association voted the Oral Hygiene Committee the slum of $1,000 in case the treasury of the Association would warrant its disbursement, but at the same time frowned on the action of the Cleveland people in accepting money from some sources from which they took it. I want to say that these men in Cleveland took up this work with the hope of getting very practical results. They started in to demonstrate to the Board of Education, the Chamber of Commerce, and such bodies in Cleveland that it would be really an economic venture to perpetuate the work they were going to carry on for one year. What they have accomplished would seem to show that it is an economic venture.

Dr. Ebersole says further on the work of Cleveland: "The work in the school is progressing as per plan originally outlined; and both the older and younger men of the profession are feeling the results. So much is this the case that many of the younger men who had more time than they knew what to do with prior to this work find that it is with difficulty that they arrange to give the time pledged for this work. Quite a number of the men who promised to give time have become so busy in their offices that they are paying cash rather than take the time for the work from their practice, and the committee has been compelled to employ some men who are not members of the Dental Society to do the work in the clinic."

You may not be familiar with the fact that certain dentists in

Cleveland who did not care to give their time pledged themselves to give $36 a year towards the work, while some of the younger men pledged their time.

Dr. Ebersole speaks enthusiastically of the increased interest of the people of Cleveland in the subject of the care and treatment of the teeth since the work began. Of particular interest is his comment on the influence of the examinations and treatment of the teeth of the school children. He quotes from the report of Miss O'Neill, principal of Marion School, to the effect that a remarkable improvement was seen not only in the children selected for experimental work but throughout the entire school.

"Miss O'Neill says of the Class of Forty, or rather of the twenty-seven remaining in the class, 'I am more than pleased with the results obtained from your work here. I would not have believed it possible to work the change that has been wrought in some of the children who go to make up the class. In the appearance and the physical and mental condition of the children, there has been wonderful improvement.

" 'We have thus far had no tests in the school here, and I cannot speak for the scholarship, but in effort, attendance, and conduct, the improvement has been astonishing. At the time you began work with the class some of the members assigned to it were before me two or three times a week for correction and punishment, and part of the members were only kept in school by the aid of the truant officer. Since your treatment began I have not had a member of the class appear before me for correction or punishment; nor has it been necessary to call in the truant officer to keep the children at their work. And those who were sullen and slow in their work have developed remarkably in effort, willingness and accuracy in the performing of their school work.' "

I have no doubt that in Cleveland there may be a certain mental or psychic condition existing, these children knowing that they have been selected as a test. There is probably a certain incentive that might not obtain in all work of this kind, but from what I have read of the results in Germany towards improving the mental as well as the physical condition, I say, outside of the philanthropic view, there is a great deal to do from a practical standpoint. If you can do that with children in school you can produce better men and better women for the places they must occupy in society.

Our system of compulsory public education is founded on the policy of making citizens capable of maintaining and conducting a free government. When such indubitable proof is found that, with all the enormous expense of our school system a large percentage of efficiency is sacrificed because of physical afflictions of the pupils which a comparatively simple and inexpensive treatment remedies, is it not time for the governing authorities to give practical assistance to the movement, and not leave it altogether to private philanthropy?

If the expenditure by government of hundreds of millions annually in the support of armies and navies and pension rolls is indispensable to national security, is it not worthy the attention of government, and should it not give early support to this department of hygiene that must, if adequately administered, result in stronger men, more efficient industrially, more law-observing, and more effective soldiers and sailors?

REASONS FOR EXTRACTING.

BY DR. L. P. HASKELL, CHICAGO.

While it is true, as a rule of practice, that teeth and solid roots should be retained, it is equally true that the principle can be carried out to the detriment of the patient.

I will give another rule of equal importance. In a given case, the time has come when a patient is compelled to wear an artificial denture. Then the only question is, what shall be done to make the denture the most useful and comfortable? If the extraction of certain teeth and roots will do this, by all means extract.

Here is a case, by way of illustration. The patient has to use an upper denture. On the lower jaw there remains the cuspids and crowned roots of the two first bi-cuspids, one of them very loose. The patient must wear a partial lower plate. If the loose root is retained, it is but a short time before it will be useless and must be removed. Then the other crowned root should be removed, because it is worse than useless. Being only artificial teeth on the other side, they will inevitably settle and the upper denture will rest on the anterior teeth (which should never be) and on the remaining crowned root, causing displacement of the upper denture. Not only this, but another serious matter is involved. These bicuspids are so far forward they barely catch on the uppers, and the pressure is too far forward on the anterior ridge. The proper thing to have done was to extract in the first instance both crowned roots, then the pressure would have been equal on both sides and when they settled and shortened simply remove the teeth and raise them.

In just such a case as this in response to the patient's desire they were retained, causing much trouble and annoyance.

In case of the lower anterior teeth remaining and one, or even two, bicuspids on one side and none on the other, the extraction of the bicuspids will be for the best interests of the patient. The pressure must be on the bicuspids and first molar; none on the second.

If the lower teeth are all retained, it is often the case that the anterior teeth are much longer than the posterior. Then set the upper posterior lower so as to prevent interference of the anteriors.

DIFFERENTIAL DIAGNOSIS AND TREATMENT OF SEPTIC PULPITIS AND PUTREFACTION OF THE DENTAL PULP.*

BY M. L. SCHMITZ, D. D. S., CHICAGO, ILL.

One object in the organization of the component societies of the parent body, is to afford young men an opportunity to develop their talents in writing and discussing papers. I feel highly honored for the opportunity to make my first effort before the North Shore Branch, although I enter upon it with some hesitation, since I have nothing new to add, having done no reasearch work on the subject.

However, from extensive reading of papers and discussions, I find there is some confusion as to the differential diagnosis and treatment of suppuration and putrefaction of the dental pulp. Until a year or so ago I was of the opinion that the diagnosis and treatment of suppuration and moist gangrene of the pulp was identical. In fact I did not fully realize the exact variation that existed in the etiology, the varied tissue changes and differential treatment which was demanded if the best results were to be obtained.

With the advent of my association with Dr. W. H. G. Logan, the opportunity was presented for observation of the exact diagnosis and treatment of these varied conditions, for it was then that I was awakened to the satisfaction which comes to the operator who will properly differentiate between the varied pulp lesions and the comfort which comes to those patients who were so treated. Therefore, let me assure you, there is much satisfaction to be derived from the accurate diagnosis of the many lesions of the pulp, which have many fine points of differentiation. The subject was considered appropriate, because it is one of the questions in last month's post-graduate study course, as outlined by the committee on post-graduate work, for the members of the Illinois State Dental Society.

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*Read before the North Shore Branch of the Chicago Dental Society, Dec. 5, 1910.

The etiological factor of greatest importance in suppuration is the presence of pyogenic or pus producing organisms, which act upon live tissue producing pus. The bacteria gain entrance to the pulp through deep cavities and exposures and through attempted capping of the pulp after accidental exposure. Pulps exposed by dental caries and in contact with saliva, may well be looked upon as infected pulps. Bacteria may gain access around defective fillings, especially those of amalgam which present sufficient carious dentin beneath the filling to allow of pulp infection through this exposure. Pulps may become infected by the passage of bacteria through considerable thicknesses of decalcified dentin, and even through thin walls of sound dentin (as has been demonstrated by Arkovy, Miller and others). The infection through the circulation is held by some to occur in a small percentage of cases.

Two forms of septic pulpitis are found; ulceration and abcess, the ulcerative form predominating. Clinically it is not always possible to distinguish one from the other before the pulp chamber is opened. If the bacteria confine their activity to the surface of the pulp, the ulcerative form is present, which slowly destroys the pulp by progressive cell destruction. If the infection is deep seated the abcess form will occur, causing a circumscribed abscess which will destroy a part or all of the organ.

The ulcerative form is accompanied by the tissue changes of non-septic pulpitis, the circulation is partly or totally blocked, blood coagulates, exudates escape. The surface of the pulp is disintegrated, pus is present, the ulcerative process following the course of the veins to a greater extent than the other pulp cells, after a period of weeks or months the entire organ may be destroyed.

Symptoms of the Ulcerative Form.

In many instances the entire pulp may be destroyed by ulceration practically without any discomfort, but usually there is intermittent pain of a low, dull, gnawing character and if the pus and exudate are confined by cavity contents, the pain will be very severe and persistent, until the obstruction is overcome or entire vitality of tissue is destroyed, as in the abscess form with involvement of the apical tissue. The main diagnostic signs of the ulcerative form are an intermittent pain of a low dull character, delayed response to cold and heat, the pulp does not fill the pulp chamber and the absence of much pus and exudates.

In the abscess form the etiological factors are those of the ulcerative form; but the infection is more deeply situated in the pulp substance and more confined. The abscess is usually situated near the point of exposure. Acute inflammation is present, blocked vessels, coagulation and exudates, forming a circumscribed cavity containing pus, the odontoblastic layer resisting the process to a greater degree than the other portions of the pulp.

Symptoms and Diagnosis of the Abscess Form.

History of a constant pain of a low order with periods of intense pain suddenly occurring and lasting for a long period, then suddenly subsiding to again occur. Finally, after 24 to 48 hours, the pericementum becomes involved. (If the patient presents at the time of pericemental involvement, the case may be mistaken as an abscess arising from a putrescent condition of the pulp.)

The main diagnostic symptoms are the peculiar reactions to thermal stimuli, cold will relieve the pain while heat will increase. The taking of hot drinks, passing from cold to warm atmosphere will increase the pain, a sense of fullness will exist, and when the pulp is fully opened, pus will escape followed by blood.

Treatment.

The treatment of both forms is similar. After applying the dam if possible, and when prohibited by extreme pain or other hindrance, the area may be kept dry by napkins. Remove cavity contents; pulp will usually be found exposed, freely expose pulp and after the escape of the blood and pus pain will subside. (By gently pricking pulp, pus and blood may more readily escape.) Dry the cavity and sterilize with phenol. Seal modified phenol as suggested by Dr. J. P. Buckley over exposure with cement. After 24 hours to three days, if no unfavorable symptoms arise (in which case patient is to return at once, when tooth is opened to permit escape of pressure, pus and exudate) the tooth is again treated with modified phenol.

The remaining vital pulp tissue is devitalized with arsenical application, providing we are satisfied that there is no danger from the presence of pyrogenic organisms. In some cases arsenic will not devitalize the pulp remnants very satisfactorily, in which case 95% phenol, applied by the puncture method, and this remedy retained in contact with the vital pulp tissue for two to four days, so it may be removed without pain. Pressure anesthesia may be resorted to, but is often contraindicated for the reason that irritants may be forced into apical tissue, as well as failure of absorption due to poor circulation. After removal of all tissue, canals are treated with modified phenol again for two to four days, when canals may be filled.

If pericemental pain is present, relief may be had by refrigeration, 10% menthol solution applied over extensive area of gum and cheek after drying the parts. Iodine, aconite and chloform may be used to counter irritate, but one application should be all, as the repeated use of the iodine compound may complicate the conditions, by destroying the overlying cells of the gum tissues.

At times it may seem desirable to preserve, as long as possible, the remaining vital portions of a pulp after the suppuration has been controlled, in undeveloped roots and desidious teeth, which may be accomplished by placing a paste of precipitated calcium phosphate and modified phenol over the pulp and closing the cavity with cement. This operation, however, is temporary. The foregoing outlined treatment is modified in cases where there is considerable amount of pus and a likelihood of the rapid production of more pus, when the remedy of modified phenol is retained with an oil saturated pellet of cotton for 24 hours.

Gangrene of the Pulp occurs in two forms, dry and moist. In both cases death of the pulp in part or in whole has occurred through one or more of many causes, which interfere with the circulation of the dental pulp. Examples, traumatism, rapid wedging or movement in regulation, passive hyperemia and pulpitis.

If the pulp dies under asceptic conditions and bacteria and moisture are excluded and the blood of the pulp is drained from the pulp tissue by the veins, dry gangrene is the result, leaving a shrivelled dry mass within the pulp chamber and canals. This tooth will lose its translucency, but will not be extensively discolored. There will be no response to tests for pulp vitality and the dentin is not sensitive to cutting and the bur chips are free from odor. On entering the pulp chamber, a dry condition will be found with the pulp in a shrivelled dry mass, if found at all.

The dry form of gangrene is rarely met with. It may especially be looked for in cases where attempts at mummyfication, with formalin, tannin and alum compounds have been made. In treating this form the special precaution is to confine the first treatment in the pulp chamber and retain with cement, as violent pericemental disturbance may arise if the canal contents become contaminated.

The canals may be cleansed under asceptic conditons by applying 5% formaldyhyde solution or sodium dioxid and the roots filled immediately. However, great risk is attached to the immediate methods. A safer method is to treat at least once with formo-cresol (Buckley), then at the second sitting canals are cleaned under asceptic precaution and filled.

Moist gangrene or putrefaction of the dental pulp is a pathological condition in which the dead tissue is decomposed by saprophytic bacteria in the presence of moisture. It may be found in teeth apparently sound, in which the bacteria may gain access, through cracks in the enamel, defective fissure, or perhaps through the general circulation, in cases where the pulp dies under filling or when the canals are improperly cleaned of pulp tissue and only partly filled and in teeth with opened cavities and canals.

Saprophytic bacteria, bacillus gangrene pulpae (Arkovy) in the main acting upon the dead tissue with the result of the serial decomposition and characteristic odors of putrefaction. Albuminous substances are changed into toxic peptones.

Ammonia Compound or Ptomaines as putrescence, neuridine and cadaverine. Nitrogenous bases, leucin, tyrosin and fatty acids.

The aromatic products are indol, phenol, cresol and the end products H2S, NH3 SO3, CO2, and H20. (Inglis after Zeigler General Pathology.)

The contents of the dentinal tubuli are also decomposed. The ptomains and gases are perhaps the most irritating products that are produced.

Symptoms.

The case may present with or without pericemental involvement; if with pericemental involvement, the tooth is sore to pressure and with more or less constant pain. If the case presents with no pericemental involvement the patient may complain of a bad taste or odor about the affected tooth. The tooth will be discolored to a greater degree than in suppurative pulp conditions, absence of response to tests for vitality and upon cutting the bur chips will have the characteristic odor of putrefaction. Upon opening the pulp chamber, a moist condition of the pulp and the characteristic odor of putrefaction will be found.

Treatment.

In all operations within a pulp chamber dryness is imperative. This is especially true in the treatment of gangrene of the pulp. The dam should be applied and if tooth is badly broken down, build it up with a band and cement, to permit the application of the rubber. If pericementitis is severe the first treatment only may be made without the rubber, but excluding the moisture with napkins. Now expose the pulp chamber wide, remove contents without disturbing canal contents, place formo-cresol in pulp chamber, seal without pressure with cement. If the pericemental involvement is present the pain may be relieved by refrigeration or counter irritant as outlined.

Second treatment. After two days, canals are partly cleaned, being careful not to disturb the apical portion. Place a dressing of modified formo-cresol loosely in lower half of canals and seal the cavity with cement.

Third treatment. After two to four days canals are thoroughly cleaned of remaining contents, dried with alcohol and hot air, when they are finally dressed with modified phenol for two to four days. If there are no signs of putrefaction after the last treatment canals are well dried and filled. If signs of putrefaction are present at this time, another treatment of modified formo-cresol will clear up the case. Formo-cresol is very irritating to vital tissue and care should be taken not to permit it to enter the apical tissue, which will not occur if a minimum amount of remedy is used on a few shreds of cotton and never carried into apical portion of root.

Suppuration and putrefaction of the pulp may be found closely associated; both forms of involvement may exist in the pulp of a multiple-rooted tooth.

If putrefactive changes are taking place as well as suppuration the treatment is modified by placing over the canal that contains the pulp tissue undergoing putrefaction formo-cresol sealing in place with a drop of cement and the other pulp filaments are treated with modified phenol and finally devitalized by the method indicated by the condition found.

The plan of treatment, as laid down in this paper, varies as to to remedy employed for the condition found, but the rule is that at least three treatments are indicated in practically every case of septic pulpitis or moist gangrene of the dental pulp. It is obvious from the foregoing that our treatment of putrefaction and suppurative pulpitis should be varied in accordance with the pathological changes occurring when our patient presents for treatment, otherwise pain may continue for a period beyond that which would have been necessary if the proper diagnosis had been made and the appropriate treatment applied at each sitting in accordance with the findings.

ROOT FILLINGS.*

BY B. H. KERSHAW, D. D. S., CHICAGO.

I am proud of the honor that has been conferred upon me in being privileged to come before you this evening, and although the subject upon which this paper is written is as old as the time of Fauchard (1733) there still seems to be ample room for improvement. I do not come before you in the guise of a teacher, or to show you anything new, but simply to emphasize a few salient points in the treatment and filling of root canals. I say treatment and fillings, because the proper filling of any root canal necessarily embodies the preceding treatment.

In the filling of all root canals the following important factors must be insisted upon if we would bring the operation to a successful termination.

1st. The complete and continued sterilization of the pulp chamber and canals throughout the various stages of the operation.

2nd. The preservation of the color of the tooth.

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*Read before the North Shore Branch of the Chicago-Odontographic Society.

3rd. The materials with which the canals are filled must be non-irritating, and a material which will be unaltered by its surrounding conditions, continuously antiseptic, if possible, and easily removed in case conditions demand its removal.

4th. The complete sealing of the apical foramen, and thorough filling of the canals.

In the filling of all canals the rubber dam should be adjusted, and thus preclude any contaminating influences of the saliva; however, where the cavity is so situated that the dam cannot be placed to advantage, napkins or cotton rolls should be utilized to keep moisture from the canals during the operation. As an example I will take a lower first molar, to be devitalized by the pressure anesthesia method through the various stages up to and including the filling of the root canals. Having the dam in place the cavity is sterilized by using a 1.500 bichlorid of mercury solution or a 10% formalin solution to which a 5% borax solution has been added; after the sterilizing solution has been applied, the cavity is dehydrated by the use of alcohol and gentle heat, all leathery decay is now removed by the use of sharp excavators, and a pledget of cotton saturated with a saturated solution of cocaine hydrochlorid is placed in the cavity under a piece of unvulcanized rubber upon which steady pressure is maintained until the dentin in proximity to the pulp is anesthenitized to such an extent that the pulp chamber can be entered with a minimum amount of pain. We are now ready to enter the pulp chamber, which is done with a small, sharp, round bur, and the anesthetization of the pulp completed, the pulp chamber is now enlarged, and all debris cleared away, and all canals exposed to view, and at this point I want to emphasize the importance of not being afraid of cutting away tooth structure so as to make all canals accessible.

The Distal canal is usually easily entered, as is also the Mesio-lingual, but it is in the Mesio-buccal canal that a majority of failures occur in all of the multi-rooted teeth, as this is often small and not infrequently constricted, and, under these conditions requires considerable patience and perseverance to reach its apex. Here I would respectfully call your attention to one very important point in root canal filling, and that is the clearance of the last 1-16 of these constricted and tortuous canals near the apex of the root, which in a great many instances, either through neglect or carelessness, or through not recognizing the importance of the operation, is left with fragments of dead tissue or clotted blood, which is bound sooner or later to become the foci for some wandering microbe and form an abcess. This should all be removed, and there is no better method to my knowledge than that of Dr. J. R. Callahan, viz., the sulphuric acid method, with which you no doubt are all familiar.

Having extirpated every vestige of the pulp, and controlled the hemorrhage, the next step is the removal of all the blood from the cavity and canals; this should be accomplished by using sterile water and not by hydrogen dioxid, as is the custom of many, as this oxidizes the iron of the hemoglobin and causes a discoloration of the tooth. After the blood has all been removed from the canals and crown cavity, the pulp chamber and canals are thoroughly dried by blasts of hot air and an antiseptic dressing such as eugenol, beechwood creosote or Buckley's modified phenol solution is sealed in and the patient dismissed for a subsequent sitting to fill the canals and complete the operation. For it must be remembered that the dental tubuli are filled with organic matter in the shape of the dental fibrillae, and that these must be thoroughly sterilized before the root is filled, otherwise they are subject to subsequent decomposition and are prone to cause an incipient abcess, thereby necessitating the removal of whatever work of a permanent character has been done as well as the root filling itself to get at the seat of the trouble. This and the frequent occurrence of secondary hemorrhage would contraindicate immediate root filling.

It has been my practice to seal all dressings with cement where there was any danger of the stress of mastication being brought to bear upon the dressing seal, thus avoiding setting up an apical pericementitis through forcing the medicament in the canals through the apex of the roots.

Upon the return of the patient, there being an absence of pericementitis, and all other conditions favorable, the rubber dam is adjusted, the pulp chamber is opened into, the dressing is removed from the pulp chamber and canals and the same are wiped out with alcohol and thoroughly dried with blasts of hot air or root dryer, and filled with whatever material has proved most successful in the hands of the operator. At this point the writer prefers to moisten the canals with oil of cajeput and fill with chlora-percha and gutta-percha points all canals which permit of the passage of a fine broach. Here it might be well to observe that the practice of pumping the chlora-percha into the canals is altogether too prevalent as this method in small canals forms a piston of the broach and does not allow the air to be exhausted from the canal and prevents making a perfect root filling. The method employed by the writer is to wind a very few shreds of cotton on a fine broach, dip into the chlora-percha and pass this directly to the apex of the canal, and then rotate the broach between the thumb and finger, thus smearing the walls the entire length of the canal, and continue doing this, each time receding a little farther from the apex until the canal is full of the solution, after which the gutta-percha point is introduced, which completes the operation.

In passing it might be well to say that the different combined abcess cures and root fillings upon the market today would seem to indicate that this operation had been far from successful in the past, but in the judgment of the writer this lack of success has been and is due to inattention to details.

The chief constituent and the one relied upon to do the work in these combined abcess cures and root fillings is formaldehyd in some one of its various forms, and the writer has used several of these preparations with various degrees of success, but the combination that has given me the greatest satisfaction in the treating of abcessed and putrescent conditions is equal parts of 40% formalin and trichlor-acetic acid.

Burchard in his text book of Dental Pathology and Therapeutics gives melted paraffin containing antiseptics as the ideal root filling material and says: "In using this material a small piece is caught between the jaws of a pair of Flagg's dressing pliers and held over the flame until melted; then the closed beaks are placed as high in the canal as they will go and slowly withdrawn, gradually opening the beaks, the fluid runs up the canals of even upper teeth. A warm, smooth, probe is then used to pump the fluid paraffin into all parts of the canal. Into the fluid paraffin a long slender metallic point of some unoxidizable material—gold, platinum or aluminum—is warmed and thrust. The end of the metallic point is left projecting into the pulp chamber, so that should removal of the root canal filling ever become necessary, a hot instrument may be laid against the exposed end, melting the paraffin, when the point may be withdrawn."

In the September number of the *Dental Cosmos,* page 976, Dr. H. C. Register of Philadelphia, gives the following formula, which he claims is all than can be desired for a permanent root filling and abcess cure:

Iodoform	
Zinc oxid	aa. ℥ss.
Formaldehyd	m. x
Sodii benzoate	gr. iv
Oil of cassia	ʒiv ss.

M.

Triturate the iodoform and zinc oxid intimately, gradually incorporating the oil of cassia into this. Dissolve the sodium benzoate in the formaldehyd, and mix it thoroughly with the foregoing mixture. This gives a smooth ointment with which he fills the canals, and finishes the operation with the insertion of a gutta-percha cone. He states that he has yet to record a single failure.

It is a patent fact that in all dental operations where the root canals are involved, the proper treatment and filling of the same is imperative to the life of whatever work of a permanent nature follows, and every conscientious dentist should exert all his skill in properly performing this part of the operation, thus not only insuring the stability of his work, but conserving the health and comfort of his patients.

WHEN TO CEASE TREATMENT.

BY DR. F. E. BURNETT, CHICAGO, ILL.

In the treatments by physicians and dentists where both visible and *invisible* conditions are encountered, the question of an exact time to terminate the treatments in a given case might reasonably be in question. If either physician or dentist will review his years of experience, he will conclude that judgment, rather than some visible symptom, has governed the time for terminating his work. This judgment upon which he depends comes of experience, comparison, and symptoms combined, and the combination of all indicates the time of termination. Granting that there is such a time, let it be called the probable time, and find if possible something in support of it.

It is to find a time to discontinue treatments based on probability and past experience that this paper has to discuss, also to show that teeth are lost where treatments are delayed. As will be described, long experience has shown that certain like results are obtained by repeating over and over again a given type of treatment. This result so constantly gotten must be accepted as evidence in fact that the time for termination of a given operation must be the same as taken for the same operation as completed in a thousand previous efforts. This seems to assert that a probable time to terminate a given type of treatment is equal and no more to the average number of treatments required for the same operation so many times repeated. To be clear, it is declared that in each series of treatments, the work shall be so thorough as to require nothing more to be accomplished at the *probable* time of completion; unless something so foreign to the first diagnosis has developed as to require an entire change of treatment.

Webster gives the definition for probable as "Having more evidence for than against: supported by some evidence which inclines the mind to belief, but leaves some room for doubt." "But leaves some room for doubt"; how does this apply to the thought in question? Reasoning that the probable time would end the treatments, the doubt applies to such other conditions as may have developed in the course of the work. The point to be illustrated is: if a diagnosis be correct in the beginning, an average number of thorough clean treatments will devitalize a pulp and care for the tooth; or that an average number of treatments will suffice for a tooth with a putrescent or a foul smelling root canal. If we carry these claims a bit farther, it may be said the teeth *must be* and *are* successfully treated within an average time, or having failed, it immediately classifies them as requiring another type of treatment.

This brings forcibly to mind the thought as portrayed in a previous paper, which referred to the first treatment to be so thoroughly done that it should bring out all the side lights and symptoms that would develop or suggest any abnormal conditions if they be present.

While to diagnose a tooth trouble correctly is important, and clean thorough treatments none the less so, a condition equally vital is that of getting through with the work. Getting through is stepping out of nature's way, to let the physiological process return. It involves the most vital aspect in treating teeth. Prolonged treatments are an intrusion upon the phenomena that have to do with the cell formation, and the future return of normal condition to the part.

The dentist must realize that he does not effect a cure by his treatments, but that he only aids nature in returning to a physiological condition. Delaying the pathological condition one day means to keep about the tooth everything that indicates negative results, while getting through earlier will allow nature to return the circulation and normal physiological condition. Indeed any case of the dentist requiring treatments is but a battle between the physiological and pathological conditions for control of the part, and the dentist only "casts the straw" to encourage one or the other. Will he finish his work quickly, rest the tooth and let new tissue cells be deposited in the affected part, or will he return periodically with useless treatments to compound the irritation?

Work that is done with dispatch may give instant reaction to normal, while slow or delayed treatments can so prolong the pathological condition as to become so established that it may never quite disappear. The physician describes a time of crisis in disease; it is when there is resolution for recovery, or when death ensues. This is true, but in a *more* marked degree with the dentist's work, which for the most part has to do with muscular and vascular tissue contained within walls of bone. Because of the limited space, any congestion of the tissue would very early cut off the circulation. A wound on the arm or limb or on a flat surface not enclosed by bone, has the possibility of help coming to it by way of collateral circulation, and the thought implied here is that such help does not come in a similar way to the dental tissues we have in consideration. Indeed it may be said that the day of crisis is always near at hand, if any type of an irritant is in contact with the peridental membrane, which, if it lingers long, means death of the part. The zone of inflammation which is called about an affected part should be more considered. A case in the writer's practice is cited because it is interesting, and serves to fix the mind on the influence of suspended nutrition to a part.

A child under five years with all temporary teeth in place, exhibited the exposed enamel surface of the upper permanent incisors, due to the absence of the labial covering of bone and soft tissues. The condition suggested a zone of inflammation, the seat of which was in the nasal passage, and examination revealed a shoe button, the iron eyelet of which was nearly rusted away. Circumstances were recalled that indicated the button to have been there eighteen months. It will be gathered that the circulation within the zone of inflammation was so impoverished or cut off that there was not nourishment enough to enable tissue cells to be deposited and cover these growing teeth.

If the dentist will come to realize the need of quickly relieving the peridental membrane of the inflammatory process at the apical space just that soon restoration may take place, unless the tissue be so wasted and driven back, its recovery is impossible.

Nothing will be said of excessive treatments that could so saturate the apical space as to destroy the contact of the peridental membrane with the tooth substance, but it could reasonably be given consideration here. Neither will we attempt to describe the influence of certain volatile drugs on the young tissue cells in these parts.

The conditions under which teeth are successfully treated are correct diagnosis, clean thorough work, medicants, physics and dispatch. Of the medicament so much may be said, as to be a chapter of itself, so it is omitted in the interest of a more important thought in question. The physics of the root canal, in its relation to both the pathological and physiological conditions, have more to do with the probable time of finishing the treatments than may be at first surmised.

Suggesting the thought of the physical influence of substances occupying small space a few illustrations are given. It is said a grain of musk will scent a room for years. That an amount of indigo equal to the weight of a small pin will give distinct coloration to a ton of water. That a grain of florescein in a hundred tons of water, will make the water fluorescent, when the water is illuminated. That a pound of yellow ochre liberated on a small stream will tint the water for a hundred miles. That a tooth has been opened, liberating hydrogen sulphide gas, the odor of which could be detected in two adjoining rooms. Hundreds of such illustrations might be given, which show the power of matter occupying small space. The facts prove that from small things and small spaces may come powerful influences, and they serve to suggest the influence that may originate from the space of the apical end of the root canal.

But granting that from the contents of one pulp canal can not come enough foul gases to quite taint three rooms, let us see how minute and delicate must be the cell life that it contaminates.

Looking toward the strong light on a white napkin, the writer once saw a small fly about one one-hundredth the size of a house fly. With a magnifying glass he could see the beautiful webbing of its wings, the little meshes with exactness filling the whole field. We might marvel at this beauty, minuteness, and exactness, but for the greater fact that, this mite of a thing has a circulating and respiratory system, capable of a life history. Can you picture the microscopic size of the heart of an insect so small, and then fancy this heart composed of many small muscle fibers? Will you divide these fibers again into innumerable cell life, and then wonder if there is any thing really small in nature?

Now just how small are the cells of the peridental membrane?

The little fly was one one-hundredth the size of a house fly, its little heart one one-hundredth of its size, and this little heart divided into many muscle fibers, which latter are made up of hundreds of muscle cells. Rather small these cells but they are about the size of the cells of the peridental membrane.

This brings us to the thought in question; the apex of the root ends in a soft tissue made up of this small cell life, which tissue lies between walls of bone with only enough space to exist peacefully, as it does in health. The question is, how can the cell life of this peridental membrane defend itself against the root canal which spouts its contents in it, on it, and through it?

We have observed that from small things and small spaces may come large demonstrations, and the cells of the peridental membrane must hold their little noses at the opening of a root canal, wondering how long the foul exudates will be permitted to disturb their very constricted dwelling place. But;—it will be claimed the root canal has been treated; true enough it has—*but it does still represent space,* in which the atoms of air are continually bombarding the walls and one another.

The air contained is not only constantly absorbing from the tooth walls, gas producing substances, but the physical property of the air itself is changed by everything introduced into the root canal. Indeed not alone does the air in the root canal absorb gases and exudates that approach it, but it moves, circulates, expands and contracts, which is its physical property to want to do. If you will just think of gases as more infinitesimal in size, than any miscroscopical object ever seen, then you will realize how they are capable of penetrating ad infinitum.

To the naked eye the hair like canal may seem small, yet it is a great open cavern to the invisible forces that travel it. This leads to another thought in question, if the root be sealed at the large end as it should be during treatment, how can the air inside expand and contract without forcing itself through both the apex and the peridental membrane, also how can the space beyond be restored to health until the root canal be permanently filled for its entire length, and the peridental membrane allowed to remain unmolested?

The root filling while being properly placed will force ahead of it some of the contents of the canal, so it would seem apparent that the quicker the root canal is filled to the apex, the quicker will be the recovery of the soft tissue, and the longer it is kept open, the further back the soft tissues must waste away. Tissue that is cut, torn, or diseased, and which is frequently disturbed, loses its original identity, and becomes scar tissue, much of which tissue is tender to a mere touch, for years. Severing the pulp tissue from the main trunk where it emerges or passes through the peridental membrane, represents a condition subject to being permanently disabled by irritation, meaning just that irritation which comes of prolonged treatments.

The summary will be, if the air and gases in a root canal can prolong the pathological conditions, and if the final root filling displaces this gas; the question would be:—How can the dentist make a test treatment before the final root filling is in place? And further, has not the root filling itself physical properties that make it operate as the final treatment? None of us can delude ourselves into believing that we always do perfect root fillings, but we have observed, that when a root canal was filled with a suitable agent, and that without delay, the tooth and peridental membrane has been glad to adopt the work. So in the light of what has been said, test treatments, such as a wisp of cotton in a root canal, is not a test after all, but is a means of losing time, and possibly the tooth. Does not the day of crisis in root canal treatment come after the root has been entered for the last time? Certain it is that the apical end of the tooth will never become incisted or grown over, so long as the gases or air inside, expand or press against the young tissue cells, nor so long as the root canal is disturbed by broaches or other agents periodically introduced.

These conditions are not mere pen pictures but are actual working conditions, and are not without some proof, namely:—Pulp extirpation (death by arsenic), followed by immediate root filling, gives uniformly perfect results. Also root filling immediately after pulp extraction, is painlessly done, while if delayed for days, is usually accompanied with much pain. Further, in reviewing a thousand treatments of a given type, it will be observed that many were finished quickly, suggesting that more would have ended likewise, had the work been done with that thought in view.

Indeed one of the best authorities on the treatment of teeth has said, that "teeth which are not saved in three treatments are lost." If otherwise stated, it could be said that as much can be accomplished in three treatments as is required. Further, that if more treatments are used, the first ones were not thorough, or the operator was groping in the dark, and as a result, the abnormal condition was being exaggerated and misunderstood. If it shall be found that an average number of treatments will accomplish an end, and if delay seems to hazard the success, might it not be argued, that the *probable time for completion could be reached earlier,* perhaps to the benefit of the average case?

PIONEER DENTISTS OF CHICAGO.*

BY FRANK DU SOUCHET.

With the feeling that much interest must ever attach to the first dentist who pioneered the way in dentistry at Chicago, the writer has endeavored to establish certainly who he was and to find a portrait and such data concerning him as could be obtained; also a glimpse of the Chicago in which he settled, and something of the causes that finally led to his removal from the city in 1839.

That the dentist was no less a pioneer among the frontiersmen in the settlement of Chicago, than his professional brother in medicine, is attested by the arrival of Dr. Peter Temple in 1833 to make Chicago his permanent home. Nothing has been found to indicate that anyone had even temporarily preceded him in dentistry.

Peter Temple was born at Bears Garden, his father's plantation, King William County, Va., September 20, 1812. He was a son of John Temple, a Baptist minister, who was born April 4, 1768; and grandson of Samuel Francis Temple of Chesterfield County, Va., born about 1745; and great grandson of Joseph Temple of Presque

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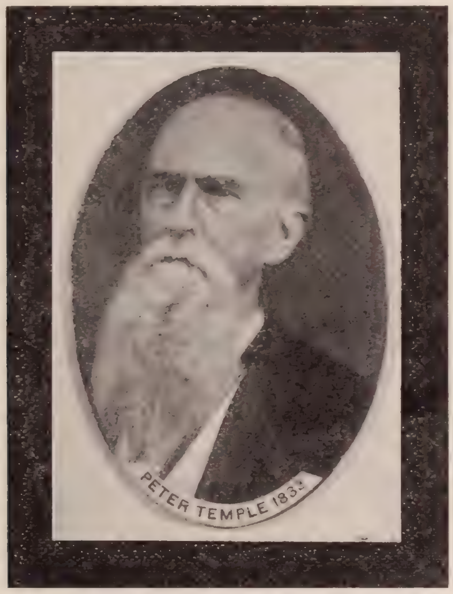
*From Mrs. Alice Temple Paine; Andrea's History of Chicago; Andrea's History of Cook County; Moses & Kirkland's History of Chicago; Cleaver's History of Chicago; Memorial, Leonora Maria Hoyne.

Isle, near Ayletts, Va. He was born in Wiltshire, England, February 3, 1666, and settled at Presque Isle about 1700. English ancestors are traced back by the family to the latter part of the fifteenth century.

The surrender at Yorktown, Va., occurred on the estate known as the Temple farm, so called from Joseph, or one of his sons.

Peter Temple studied medicine and dentistry at Philadelphia and came to Chicago for his first practice. His selection of Chicago as a place of settlement came about through his brother John who at that time held a position in the patent office at Washington.

John T. Temple had married the daughter of Rev. Dr. Staughton of Philadelphia, a prominent divine of his day, and who had made the address of welcome to Lafayette when he visited this country by invitation of Congress in 1824.



DR. PETER TEMPLE.
The first Dentist to Settle at Chicago.

Dr. Temple had become apprehensive of his health, fearing consumption, and felt that a western location and out doors life might be the best means of warding it off.

Through Dr. Staughton, a friend of Martin Van Buren, who at that time was Secretary of State in President Jackson's administration, he obtained an introduction to that gentleman, and through his influence was given a contract to carry the mail from Chicago to Fort Howard on Green Bay. This gave him the desired opportunity and settled the question as to location, and that of his brother Peter, who decided to settle at Chicago with him.

The Temples belonged to a family of wealth and refinement, and both were given a collegiate, literary and professional education, both being graduates of the Medical Department of Jefferson College. In education and refinement they differed widely from the pioneers of the Daniel Boone type who blazed the way in the march of settlement westward.

Chicago was fortunate in having among her earliest settlers an unusual number of educated and refined people, who for one reason or another, had sought out this village on the outskirts of civilization, to make it their permanent home.

The route to Chicago of those who came from the east, was on the Erie Canal, by boats drawn by two horses, driven by a boy on foot, who urged them on their toilsome way to Buffalo, from whence passage could be taken on one of the small schooners then sailing round the lakes, or if fearing to take the risk, overland in their own wagons through Pennsylania, Ohio and Indiana, skirting the southern side of Lake Erie, a distance of more than five hundred miles. By this route as far as Cleveland the roads were fairly good, but after passing that point they were new, and in wet weather most of it almost impassible.

The bare recital of the route gives but little idea of how slow and toilsome the journey became to those who braved the hardships of the trip.

The Temples came overland through Michigan and found a lodgment in the log cottage of "Old Wattles" who kept a tavern on the Point, where the north and south branches diverge from the main river.

Mrs. Judge Hoyne, daughter of Dr. John Temple said of it, "the logs were chinked with mud and one could see the daylight through, or lie in bed and see the stars above."

Of the Chicago of 1833 Charles Cleaver, who arrived near the close of the year, has this to say in his reminiscences published in 1892. "While waiting around that afternoon, while a boarding house was being looked up, we had ample time to make a few notes of our surroundings. What few buildings there were on the south side were built on the edge of the prairie about a hundred feet from the river, with an Indian trail deeply indented in the soil running close to it along its banks.

"There was no road or street thrown up, but the houses and stores were scattered here and there from above State street on the east to the forks of the river westward. On the west side were several buildings, and on the north side east of Dearborn, was also a cluster of small houses. From Dearborn street, west, the north side was one dense forest, with the exception of a couple of log houses, and a house and barn situated on the point made by the north branch as it emptied into the main stream. Such was the general aspect of the place from the point where we stood, near Franklin street."

Such was the place in which Peter Temple had settled only a few months before, and the beginning of dentistry at Chicago. If not merely a trading post, it was just ceasing to be one. It was only the previous year that the Black Hawk war was waged by the Indians for the recovery of their lands, resulting in their defeat. Following this, on September 26, 1833, a final treaty was made for all their lands with the Pottawatomies, 7,000 Indians being present, and this was followed by a war dance by a thousand braves who took part in it.

Mrs. Judge Hoyne, eldest daughter of Dr. John T. Temple, then in her ninth year witnessed the war dance, and in later life wrote of it, "While we were living in the cottage the great war dance took place. Poor mother was almost crazed with fear; she laid down on the bed and covered her head with a pillow to shut out the fiendish yells of the red devils who were dancing before our door, brandishing their tomahawks and knives, firing pistols and making the air ring with their horrid noise.

"There were nearly a thousand warriors, naked, excepting the breech cloth about their loins, and in all their war paint, which made them still more hideous.

"I stood on a chair at the window and peeped through the shutters to see the fiends. They were more like an army of devils than any thing one can imagine.

"The picture was indelibly fixed in my mind, and as I write, is vividly before me; the women and children were sent to the fort for the night."

This was their great orgie before the closing scene, when the tribes were gathered together and removed to the reservation allotted them beyond the Mississippi.

While for the last few years immigraton to Illinois had been steadily on the increase, the settlers braving the dangers from the Indians, it was not until this year that settlers could feel safe from Indian attack.

The population of the village of Chicago at this time was estimated to be from one hundred and fifty to two hundred. What the village lacked in size was fully made up in the liberality of the organizers of the county who included within its boundaries an area of more than five thousand square miles of almost uninhabited domain.

The settlement of the Black Hawk war now gave a strong impetus to immigration, not only to the state, but also to the village of Chicago.

Among the early settlers of Chicago, perhaps none contributed more of energy and enterprise to the upbuilding of the village than these brothers.

When they came the village had neither church, court house, or jail. Through Dr. John Temple's energy and liberality, before the close of the year, the Temple building had been erected, in which Methodists, Presbyterians, and Baptists worshipped, and in which a school was established, and the residence of Dr. John Temple was finished during the winter and the spring of 1834. This was one of the first frame buildings erected at Chicago.

On November 26, 1833, was issued the first number of the *Chicago Democrat.* A partial file of its first issues is to be found in the library of the Chicago Historical Society.

On the first day of January, 1834, the post master, whose office had been established only a few months, published a list of letters in the post office that day. Among them were three for Peter Temple. Of this first post office, Mrs. Hoyne wrote "John C. Hogan, a trader, had for the time and place a large store near our house on Water street, between what are now Franklin and Market streets; Mr. Hogan being the postmaster. It was an old boot leg tacked to one of the posts in the store; the mail was put into this receptacle, and each person helped himself to his own mail."

While active in business, Dr. Temple seems to have been modest and disinclined when it came to going into print.

The notices in the *Democrat* of Dr. W. H. Kennicott, who had become a competitor in dentistry after the 25th of May, 1834, seemed to call for some statement from him that he had permanently settled at Chicago. Dr. Temple inserted the following notice:

Dr. Peter Temple.

Having permanently located himself in Chicago, respectfully tenders his professional services to the citizens of this town and vicinity.

Dentistry.

Dr. T. having studied and practiced dentistry as a branch of his profession, offers his services to the citizens of this town in the various branches of the above department. Office on Franklin near Lake street, adjacent to the dwelling of Dr. J. T. Temple, July 7, 1834.

He was married at Chicago, May 20, 1835, and as a bridal trip went with his young wife to Philadelphia where he took a post graduate course at Jefferson Medical College.

Two children were born to them, George B., who became an M. D. and died August 30, 1908; and Alice, now Mrs. Alice Temple Payne of 2004 Franklin avenue, Lexington, Mo.

Mrs. Payne has contributed to the Chicago Dental College a silver plate made for her mother by Dr. Temple before their marriage, and which is not unlikely the first plate made at Chicago. The teeth may have been taken off for another set, as there are none on it now.

Dr. Temple became interested in town lots, and finally to such an extent that the first city directory published at Chicago, 1839, and the last year of his life here, prints him; Dr. Peter Temple, Real Estate. His practice continued at Chicago until 1839, when he removed to St. Louis, where he became a convert to Homeopathy, took up its practice and relinquished dentistry. He finally removed to Lexington, Mo., where he continued to practice Homeopathic medicine until his death, March 18, 1884.

In one of Mrs. Payne's letters to the writer she had this to say of her father at Chicago: "His means were ample, and freely spent. Today there is more than a million dollars' worth of property in Chicago that is rightfully ours, my father neither sold or signed any of it away." This has led to looking into business conditions obtaining at Chicago during those years for a solution of the reasons that could impel him to leave Chicago with his affairs unsettled. This study reveals the tragedy of his life.

In the first place a canal had been devised for connecting at

Chicago, the Great Lakes with the Mississippi river and thence to the Gulf. This was so effectively championed by Daniel P. Cook, representative in Congress from Illinois, who brought before the general government, the subject of aid for the canal, that a grant of more than three hundred thousand acres of land along the Illinois river to Lake Michigan was voted by Congress in aid of the undertaking. In this grant was included a large part of the site of the City of Chicago. For this service the county was named in his honor. The construction of this canal, and its great importance to Chicago was deemed the best means of advertising the young town, and the canal was boomed to the limit.

The communication thus to be opened up at Chicago, through the Great Lakes to the Atlantic on the east, and through the canal and Mississippi to the Gulf on the west, would make the longest line of continuous inland waterway in the world.

This connecting point must inevitably make Chicago a great city. This fired the imagination of thousands of adventurous people and traffic in town lots became a craze. The population in 1833 was one hundred and fifty or two hundred, this was multiplied ten times during 1834 and became sixteen hundred or two thousand.

While the construction of the canal was not undertaken until 1836, the advertisement had done its work.

Andreas History of Chicago quotes Mr. G. S. Hubbard, then the oldest living settler, as saying, "At the first sale of canal lots in 1829, I bought two lots. one on the northeast corner of Lake and La Salle, the other on the southwest corner of La Salle and South Water street, 80x100 feet each, for thirty-three dollars and thirty cents each. In 1836 these lots could have found ready sale for one hundred thousand dollars.

C. S. Butler published a letter in the American, September 3, 1836, and in it stated that in the year 1833 one-fourth of Kinzie's addition was offered to him for five thousand five hundred dollars. Then, 1836, it was worth a hundred thousand dollars.

Another tract in Chicago of fifty acres, worth in 1833, four hundred dollars, was then worth two hundred thousand, and that the Hunter property was purchased in the spring of 1835 for twenty thousand, and resold during the year for one hundred thousand, and was worth at the time he writes, 1836, five hundred thousand dollars.

Dr. Temple's energy and easy means doubtless led him to be one of the foremost among the real estate men then operating in Chicago town lots.

If not "reveling in suppositious wealth" as was said of many of the land speculators of that time, Dr. Temple evidently regarded himself as in easy circumstances, for we find him in 1836 one of the organizers and incorporators of the Galena and Chicago Union R. R., a work of such magnitude as would only be undertaken by capitalists and men of large means.

The panic of 1837 and extending over the next two or three years effectually stopped further work on the road, and its construction was not finally undertaken until ten years later. The end of the excitement was unheralded.

An act passed by Congress June 23, 1836, regulating the deposit of the public money, made it the duty of the secretary of the treasury to discontinue the use, and discredit the issues of such banks as should at any time refuse to redeem their notes in specie. This was a death blow to wild-cat banking, and resulted in the following May in a general suspension throughout the country of specie payment, and the total failure of most of the western banks, which had run thus far, and floated their bills entirely on credit. All payments to the government under the law were to be made in specie, or bank notes redeemable in specie on demand. It followed that with credit greatly extended, and prices already enhanced a hundred fold above what could be measured by the entire amount of specie in the country, in the process of adjustment to the arbitrary conditions of the law, a collapse in prices occurred sufficient to bring the valuation of all property to a specie standpoint.

Unfortunately the note of the sanguine speculator did not shrink proportionately with the sudden decrease in the value of their securities. Prices of lots, valued in Chicago in 1836 at a thousand dollars suddenly fell to the specie value of three years before, perhaps fifty dollars, while the note that the last buyer had given for it remained a thousand dollars.

Widespread ruin was the consequence, and the bubble burst in May, 1837. When the town of Chicago became a city in 1837 many of its inhabitants who had reveled in suppositious wealth, were in sack cloth and ashes, mourning over lots from which all value had departed, or bewailing the existence of notes of appalling magnitude which were the reminders of the glorious times gone by.

Both illicit and legitimate real estate traffic was brought to a close with a crash. The defrauded and the dishonest went down in common ruin.

By 1838 the sheriff was the only real estate agent who could dispose of property. Such were the conditions to which Dr. Temple's real estate activities must have brought him. It would look as if he had vainly striven to stem the tide until 1839, when in despair he simply laid down the burden, and left it all.

IS OUR PROFESSION AWARE OF ITS GROWING RESPONSIBILITIES?*

BY G. W. DITTMAR, D.D.S., CHICAGO.

Mr. President and Members: This evening our newly organized branch of the Historic Chicago Dental Society begins its career. We have a broad and I believe a productive field in which to labor, and if every member does his duty, there can be no doubting the value of the harvest, which I hope in years to come will be *a record* that we can look back to with pride, because of what this organization has done for us as professional men, and still more for what it has done for our patients and for suffering humanity by supporting and stimulating the propaganda now so well on foot, which will tend to educate the public to the need of oral hygiene in its most comprehensive sense. It was the wish of our president and program committee that I present something of an idealistic nature, in other words "to shoot at a star, and while I love to commune, in my feeble way, with the beautiful" thoughts and idealisms expressed so generously throughout literature: I find myself more of the practical make up and so feel that I will disappoint, to a degree, those making this request.

Disappointment also comes to me, because of the very limited time allotted me for writing this paper. I should have had time to review the literature on the thoughts I wished to express, digest, crystalize and present them in good form, but instead of this, I have hardly had time to decide on the character of thought I wished to present and necessarily it will be somewhat of a pot pourri.

In that beautiful, elevating and immortal article, the oath of that great physician, Hyppocrates, we find these words: "With purity and holiness will I watch closely my life and my art."

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*Read before the West Side branch of the Chicago Dental Society.

We, as dentists, should realize and I believe we do when we stop to reflect that we assume a very responsible position among those practicing the healing art, and that because of this position and the responsibilities going with it, we need "watch closely our life and our art."

"Our life." We should be well and harmoniously developed, mentally, morally and physically.

We should be honest and industrious, frugal, kind, sympathetic, generous and charitable. We should be good citizens and take an active interest in the broader affairs of life. We should, at all times, and under all circumstances, practice the golden rule. Above all we should be men. These several "should be's" are to my mind, some of the essential requisities of an ideal professional man.

"Our art"—DENTISTRY.

There can be no question but that our profession is gradually and steadily attaining deserved recognition because of the important role we play in preventing diseases, preserving health and prolonging life. A few members of our mother profession long have taught the importance of having healthy oral cavities and their relation to good health, good citizenship, happiness and success in life.

The famed Dr. William Osler, in his medical works, points out the necessity of having the mouth clean and healthy and the teeth free from cavities, so that pathogenic germs, which find a delightful environment in a diseased mouth, do not contaminate the food and drink and infect susceptible glands and organs.

Chicago's most efficient Commissioner of Health, Dr. W. A. Evans, before the National Dental Association,—our parent society, and on numerous other occasions, has graphically and logically pointed out the relation that diseased and neglected mouths have to the inmates of almshouses, jails and penitentiaries, in other words to the producing of undesirable citizens.

Dr. Horace Fletcher's influence in instructing the public in the proper use of the organs of mastication and the importance that the proper chewing and salivating of food is in maintaining good health has been an agent of great value, primarily to the laity and secondarily to us as a profession, for it causes the people to recognize our work and its relation to their welfare.

Masterly essays have been presented before numerous dental organizations tending to arouse more interest in our own ranks—one of the most forceful I have read being that presented by Dr. A. H. Peck of this city before the Illinois State Dental Society last May entitled "A good set of teeth one of the most important attributes of man."

The work of the committee on Public Dental Education appointed by our State Society deserves recognition for its splendid effort in preparing a pamphlet for the laity entitled "The Care of the Mouth."

The public press committee of the same Society has under way material which will be a most potent force in educating the reading public. Lectures on important dental topics so prepared that the laity can understand have been and will be delivered to interested audiences.

Our parent Society, the Chicago Dental, has committees at work to establish more free dental clinics for examining and taking care of the mouths of the needy and deserving poor, especially the children. Thus in addition to the agitation produced in our own organizations, we are supported by eminent physicians, and the numerous agencies which tend to educate the public to the all important needs of having healthy oral cavities and efficient organs of mastication. Now all this publicity will naturally work to a double benefit, first to the welfare of the laity and, second to the welfare of our profession.. But let us also remember that this publicity will demand from our profession more and better service and greater responsibilities. If we are to continue to hold a position of merit, we must be prepared to render skillful, efficient and honest service: We must also keep on improving.

While your essayist is very optimistic and can see great opportunities in the future, "if we make good" and while he also believes that as a profession, we never rendered as good service as we now do, yet most every day, you and he are confronted with evidences of unskilled, mis-directed, yes, dishonest service.

We will doubtless always have among us those who are unskilled, who lack good judgment and those who are dishonest, but it is up to the better element in the profession to endeavor to keep the percentage of this undesirable class as low as possible, so that the public will not suffer in too great a degree and our profession also not suffer the loss of its good name.

To repeat again, we must watch closely our art. Every man desires to achieve success, at the least, that should be his ambition.

"The men who have achieved success," says Cushman K. Davis, "are the men who have worked, read, thought more than was absolutely necessary, who have not been content with knowledge sufficient for the present need, but have sought additional knowledge and stowed it away for the emergency reserve. It is the superfluous labor that equips a man for everything that counts most in life."

We must, to be successful dentists, know our duties; have proper knowledge. Having graduated from a dental college and obtained a license to practice; having kept abreast of the times by reading and studying dental journals and text books: Being members of dental societies and attending the meetings and clinics; making ourselves proficient in the application of what we learn, so that we can render skillfull service: Then using good judgment and being honest and courteous to our patients should make us successful in the application of our art.

We must also be equipped with all the necessary instruments, appliances and drugs kept in the best possible condition. Our offices must be clean and tidy, and our persons also. Now being prepared to serve our patients properly; giving them the best that is in us, we must without question, in justice to ourselves, see that the scales properly balance. In this commercial age, success implies in a considerable measure, what a man is worth in dollars and cents, and while I believe that a true physician or dentist or any other man should willingly give his service to relieve a fellow sufferer of pain or danger without the thought of compensation, yet it is only to those who are unquestionably deserving that we should be expected to render such service gratis. Having equipped ourselves in the highest degree and thereby having spent a number of the best years of our life, diligently toiling; Our education and equipment having cost thousands of dollars, we must see to it that we receive remuneration. This brings us now to a consideration of the subject of fees. This subject, it is not my intention to consider at length. I could not tell you what you should charge for an operation or a piece of work unless I knew practically all of the factors which might enter into the case, then again what I might consider a just fee, you might consider too high or too low, so this question of fees will always be, to my way of thinking, a question which each of us must solve for himself, being governed by the circumstances and facts which should be taken into consideration.

However, I do wish to make a plea for honest fees—fees that will justify the name—not prices. Get away, please get away from the idea that you are selling fillings, inlays, crowns, bridges and dentures for "so much per." What logic or justice is there in charging, say $3.00 for the thorough cleansing of a set of teeth. I mean have a fixed price of $3.00 for "cleanings." I know of localities, where the price is $1.00 for having the teeth cleaned—no more—no less, always $1.00 for "cleaning." What justice is there in this charge, when you apply it to your patients and to yourselves? For example: Case A. presents, a young lady, whose mouth is naturally clean and who in addition takes good care of her teeth; in ten or fifteen minutes, you have her teeth in perfectly beautiful condition. Case B. presents, and you work for two hours diligently to remove those large and hard calcific deposits and polish the teeth, yet there are dentists who charge each of these patients the same price. The same principle of charging they apply to fillings, to crowns, to all work.

Can you afford to give your skilled service and time to Case B. and do a thorough and conscientious operation, conditions being equal as regards ability to pay, and charge no more than you did Case A.? No you can not—you are either over-charging A. or under-charging B., and doing an injustice to yourself.

Why do we see so much bad dentistry—so many teeth diseased and being lost due to calcific irritation, bad fitting crowns, bridges and dentures; roots filled with cotton, and some form of paste, all kinds of dishonest dentistry? Not necessarily because the dentists doing such work are ignorant or unskilled, but because they figure they can't afford to waste the time to do an honest job for the price, they are getting.

The irreparable injustice that such dentists do to their patients to our profession and to themselves can hardly be estimated.

What logic is there in a man having a fee list and adhering to it from year to year? Are you no better dentist than you were last year or the year before or five or ten years before? If not you should of course not demand more for your service: If, however, you are still in your younger years there can be no excuse for you not improving, becoming a better dentist each year, each month, each day.

If you are becoming more proficient and are serving your patients better than ever before, are you not entitled to more compensation?

No fair-minded person would deny that you are not; providing your patients are financially able to compensate you.

Dentistry differs from other professions, barring surgery. Our useful years are not many, on an average dentists are about 25 or 26 years old, when they commence the practice of their profession, applying themselves closely to their labors, as many are forced to do, they, at the age of 50 to 55 years no longer can compete with the younger men owing to weakened eyes, unsteady nerves or broken health. In the comparatively few years, they have been forced to pay up the money borrowed to secure their education, to properly live and take care of their families in the interim, and save enough to comfortably live during that so-called "rainy day," that is sure to come to most of us.

In the professions of law, medicine and theology and in the business world conditions are different. A good lawyer, physician, clergyman or business man as he ripens into years of experience, becomes more and more valuable and because of this experience, his advice and services are sought by those who can well afford to pay him.

Now, gentlemen, as I near the end of my paper, I more fully appreciate that it is truly a pot pourri, I regret that I could not get time to boil it down and better connect the essence of my thought.

My aim has been to call attention to a few important things which the busy man seldom thinks about: viz. our "Life and Our Art." What is being done to educate the laity to the importance of oral hygiene and efficient masticating organs. That, we as a profession, must appreciate our responsibilties and endeavor to further raise our standard by proper equipment in its fullest sense, rendering conscientious and honest service. And lastly that we do justice to ourselves and to those dependent upon us by demanding just and honest remuneration for services well rendered.

OUR DUTY IN INSTRUCTING THE PUBLIC.*

BY J. E. JACOBS, D.D.S., CHICAGO.

Judging from the subject of this paper, it may appear as if I were to deal with the subject from the view point of dental education of the public in an organized way. So much good has recently been said, written and done in this way, that it would necessitate repetition for me to dwell on that phase of the subject, so I shall direct my remarks in this discourse, principally towards that which I feel should be the heartfelt duty of each practitioner, in his individual practice.

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*Read before the Lincoln Park branch of the Chicago Dental Society.

As a man is of value to his community only as he serves the public good, so will the dental profession and their services be appreciated and demanded only as their usefulness and necessity becomes apparent.

"First above all things to thine ownself be true, and it will follow as the night the day; thou cans't not then be false to any man."

I am frankly of the opinion that individually the greater per cent of the dental profession are not doing their highest duty in regard to educating the public as to the importance of dental care and hygiene, even in as much as making it possible for such as are of susceptible mind, to procure the proper instructions.

Many people come to us for aid and information, and because they have not that facility of expression perhaps to demand that which properly belongs to them (the right to knowledge) they are turned away without instruction, and what is worse, in a great many cases they are misinstructed either due to the unfortunate lack of proper knowledge on the part of practitioner, or as is more often the case, it does not appear profitable to him to expend the extra amount of time and energy, and for that same unfortunate reason many a child's tooth is neglected, extracted instead of being treated. Often the patient is left to believe that the teeth of children can not be filled because they are not full grown, consequently the fillings would eventually be too small and drop out. Gentlemen it is our manifest duty to instruct and warn our patients against such false teachings. The man responsible is unethical or in plain words, a faker, and can but receive his just reward. These very patients will gladly pay for the time necessary for efficient work and proper instruction, if that be a consideration. Many a practitioner holds to the false conviction that a patient comes to him for mechanical service only, and is "not supposed to know."

Gentlemen, I say to you, that your patients have a legal and civil right to all of your knowledge that capacity of intellect will permit them to absorb; for their own protection if nothing more.

The world at large has come to realize the absolute necessity of sanitation in connection with public health generally. It is the age of prophylaxis. While it is a recognized fact that a movement of such paramount importance to the general well-being, as public dental education should be promulgated in an organized way and subsequently through co-operation with municipal and state organization, it is likewise true that the active co-operation of each and every member of the dental profession is most important in order that the maximum amount of good may be done. Every man is in duty bound to do his share; first, by affiliating himself with his local society and becoming active therein; second, by his individual work in the daily pursuit of his practice.

The lamentable fact is very apparent that the average general practitioner of dentistry devotes too many hours per day to the mechanical phase of his calling, to the detriment of the scientific phase, which means restoration instead of prophylaxis, cure rather than prevention, so inconsistent with modern teaching.

Now with reference to instructions to patients. It has been my practice to begin the treatment of each new patient by giving them careful instruction as to the absolute importance and method of the personal care of the teeth, demonstrating the proper use of the toothbrush and the silk floss, condemning the use of the wooden tooth-pick, which has done more harm to our well-meaning patients than could possibly be realized.

Parents who come to you for your services should be urged to bring their children in for examination. It is your *duty* to ascertain whether or not there is a child in that home in need of your services, and not getting them, for the reason that the parents have frequently never been properly informed of the true conditions. It is therefore the individual duty of each practitioner, to see to it that those of the laity that come under his supervision receive proper and timely care and instruction, in matters pertaining to "Oral Hygiene."

PROCEEDINGS OF SOCIETIES.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting of the Chicago-Odontographic Society was held at the Public Library building, Chicago, on Tuesday evening, November 15, 1910, at 7:45 p. m.

Dr. F. H. Zinn, President of the Society, occupied the chair.

Dr. Marvin L. Hanaford, Rockford, Ill., Dr. A. D. Kyner, Moweaqua, Ill., and Dr. E. H. Allen, Freeport, Ill., presented a symposium on "Methods of Root-Filling."

DISCUSSION.

Dr. C. P. Pruyn:

As a Society I think we should feel greatly indebted to the three gentlemen, who have entertained us this evening. We are especially indebted to Dr. Hanaford for his work during the last decade along these lines. He reluctantly took up this work ten years ago, because he thought there was need for it. It entailed a larger amount of work than we realize; but he did it for our benefit, and the benefit of the public, and he ought to receive honor for it. We are too apt to overlook the work of original research, that our co-laborers are doing.

Dr. Kyner is a new man in the field, but from the way he has taken hold of the work we find he is a man to be reckoned with. We have many willing workers, and as a result we are improving. I used to dread opening up canals, but now I do not dread it nearly as much, and I have very few faulty cases come back to me, because I am following out scientific lines of practice better than ever before.

Dr. Kyner quoted me as using sandarac varnish. I have also been given the credit several times of having originated this method of canal filling. I herewith disclaim any originality in the use of this method whatever, except as to the addition of the essential oils. My attention was first called to this matter by Dr. P. J. Cigrand about twenty years ago. When he told me about it I thought it was a rather slip-shod way of filling canals. He said he had been doing it for a number of years and that it gave great satisfaction to both himself and his patients; so I commenced it. In my hands it has proven the most satisfactory method I have ever used. You know there will frequently be a constricted portion of the canals at, or near their commencement, and my method is to use sulphuric acid as a method of getting into the canals; then I use mechanical methods as well. Some hesitate to use a Gates Glidden drill, and you should hesitate. Do not put on any pressure when you use it. Barely let the point run itself, then use a little larger, then use some more of the sulphuric acid and keep on enlarging it.

Neutralize the sulphuric acid by potassium hydrate then antidote the action of the potassium hydrate by the use of alcohol. Use plenty of alcohol all the way through, as it not only dehydrates, but destroys or inhibits microbic growth also.

First have the sandarac varnish made permanently antiseptic, by the addition of about 2% oil of cinnamon, and 2% oil of cloves—put the two oils in alcohol, so they may lose their identity before putting them in contact with the gummy sandarac, or sandarac varnish, as the oils should be thoroughly cut with the alcohol before attempting to incorporate them with the resinous sandarac. Then after thoroughly dehydrating the canals leave a little alcohol at the apical third, then apply the sandarac with a small smooth broach. The alcohol in the canals very readily unites with the fairly stiff varnish and in this manner the varnish is carried into the fine tortuous canals, where even the smallest steel broach will not enter. Then follow up with a gutta-percha cone until by pressure the resinous gummy substance has been made to penetrate into the fine canals where nothing else that I know of will enter so perfectly. The advantage of this method over chloro-percha is as follows: Gutta-percha, as you know, is soluble in chloroform, and when you put a gutta-percha point in contact with chlora-percha the point very readily softens, and does not go where you intend it should, so that the chlora-percha acts as a deterrent to deter or prevent the point from going as far as you wish it to. Just the opposite condition prevails with sandarac varnish, as the gutta-percha is not soluble in alcohol and the point remains stiff. Then the varnish acts as a lubricant to assist in the further entrance of the point into the canal, and the gummy material is crowded before the point into the otherwise inaccessable places and remains as a permanent antiseptic filling.

Sandarac varnish has also another point of excellence over chloro-percha. When the chloroform evaporates from the chloro-percha solution you know how it contracts upon itself, and cleaves away from the sides of the bottle or vessel, leaving great spaces at the periphery unlike sandarac varnish, which clings to the sides of the bottle or container, thus permanently sealing the walls of the canal and dentinal tubules. The mephitic gases, which are also observable when opening up an old chloro-percha canal filling, are of a negligible quantity when opening up an old sandarac varnish and gutta-percha canal filling. There are several resinous materials, however, that theoretically would be just as good as sandarac varnish.

Dr. Kyner's method of using sandarac varnish cones may prove to be a very fine addition to the solution of sandarac in alcohol, and possibly an improvement over gutta-percha. Time alone, however, will demonstrate which is the better method to pursue.

Dr. J. H. Woolley:

Dr. Hannaford questions our advance along certain lines, in dental science, during the last ten years, especially that of filling pulp canals. He claims that we have not improved in technical skill in this class of operations comparing the filling of roots of ten years since embedded in plaster and recent operations.

The proof of a successful operation in this line of work is found in the oral cavity. If the roots are thoroughly filled to the apical foramen there will be a sense of pressure in the apical space which serves as the desired test.

Superior to all other tests, however, is that of the X-ray which reveals the condition of the tooth after it is filled. What is most needed is a systematic and well-formulated plan of procedure, great carefulness of detail and sufficient time. What are the requirements for materials for root filling? They must be non-oxidizable, impervious to moisture and of an enduring nature and compatible with the structure of the tooth. Gutta-percha answers all of these requirements.

The practical value of these experiments can be determined only by time. The question is of the comparative value of gutta-percha and sandarac in root filling and the degree of moisture found in each.

Let me show one test of gutta-percha and the chemical tests of the combination filling, gutta-percha and sandarac varnish. Gutta-percha, according to chemical tests, is as follows:

Gutta-percha C^{20} H^{32} Oxygen 80%.

Fluael H^{32} Albane $C^{2}H^{32}O^{2}$.

It is not solvent in water and it cannot be oxidized. Sandarac is made up of two resins, one of which contains a bitter principle and is soluble in water. This has been proven by laboratory experiments upon watch crystals. The following are some of the experiments which have been made by an expert chemist showing the action of water on sandarac.

Ten grains of sandarac were suspended in one hundred cubic centimeters of distilled water at about twenty degrees C. for three days. 5.050 grains of the solution were filtered in a tarred watch crystal and evaporated. The residue cooled weighed .007M grams.

Five grains of sandarac were suspended in one hundred cubic centimeters of distilled water at 35 degrees C. for two days. 5.752 grams of the solution were filtered into a tarred watch glass and evaporated. The residue cooled weighed .008 grams.

Five grams of sandarac were suspended in one hundred cubic centimeters of distilled water at 35 degrees C. for two days.

5.022 grams were filtered into a tarred watch crystal and evaporated at about 80 degrees C. The residue cooled weighed .007 grams.

These results indicate that seven hundredth parts of water dissolved out one part by weight from sandarac under reports given. The practical value of these experiments can be determined only by experience, but the results are given with the hope of suggesting other experiments bearing directly on other subjects in which we are interested. The question is in regard to sandarac and gutta-percha filling, to what degree moisture is found in root filling and to what extent the moisture affects the varnish.

Now, with reference to what is necessary in the preparation of a tooth where it is devitalized. The preparation for filling pulp canals after the root has been rendered aseptic, and before proceeding to fill the pulp canal with gutta-percha, what is most important to my belief is thorough desiccation to obtain the best results; this being accomplished through the agency of a heated broach. By those means, not only the canal can be thoroughly desiccated but the tubuli as well.

To determine that the pulp canal is properly filled the patient should experience pressure at the end of the root. When filling the canal with chloroform first, then chloro-percha and followed with gutta-percha cones, these will produce pressure. The bubbles of air can be worked out of the chloroform, and then by working your chloro-percha and thickening it, and following with gutta-percha cones, and working the cones very delicately, the patient will have a sense of pressure. Great care should be used not to cause pain. As I said about drying out the root canal, after you spend sufficient time so that you know the chloroform has volatilized, the gutta-percha will adhere to the walls of the canal, and cling to the tubules of the teeth.

Dr. Edmund Noyes:

Mr. President: It is not needful that I should prolong the discussion very much, but there are two or three things I want to say. The most serious difficulty in a very large per cent of the root fillings that have been made for many years past arises from the fact that they have been made of a very fluid material and a very solid material and after a time the chloroform which dissolves the first portion is gone, and the root contains a solid cone of gutta-percha surrounded by practically vacant space, or at least a space so porous that infection takes place with the greatest facility as soon as the canals are exposed by subsequent decay or by leaky fillings. It has for many years seemed to me indispensable to the best kind of root filling that it should be homogeneous instead of being a thin fluid and a solid cone which does not fit.

The expositions here this evening have been very enlightening, and it seems to me very useful. The process described by Dr. Kyner accomplished just what I suggested. The only questions about the root fillings suggested by him, aside from questions of facility and practicability in manipulation, are the questions of shrinkage, and the question suggested by himself, of the possible effect of the moisture in the tooth upon the gum after a long time. The experiments described by Dr. Woolley are somewhat suggestive in that line, namely, that gum sandarac is to a very slight degree soluble in water, but it would be doubtful whether it would be dissolved in the root sufficiently to injure its value in the course of a life time. The method described by Dr. Pruyn is still open, though perhaps in a much less degree, to the same objection of a comparatively fluid portion, shrinkable by the loss of the solvent. The tendency of the sandarac to stick to the walls would be a very important advantage over chlora-percha.

The question of manipulation comes in, and there is great similarity in the method and in the result between the method as described by Dr. Kyner and the one I have described a good many times, of filling roots of teeth with Hill's stopping, softened as much by the help of heat and as little by the help of a solvent as is practicable to enable the filling to be carried to the end of the canal. The method of Dr. Kyner has the very great advantage of not requiring hot instruments, and the temper of canal pluggers can therefore be retained.

Dr. J. N. Crouse:

I can tell you a way to fill root canals where you do not have any shrinkage, and you do not have any trouble about getting the material there if you manipulate it right. That is oxy-chlorid of zinc, and carrying it there with a little point. I have described it many times, and I don't remember that I have seen three alveolar abscesses from teeth I have filled, and I have been using it forty years. The oxy-chlorid of zinc wants to be of a quality that will mix right. Take a broach that will pass up into the canal. Put the slightest bit of gold around it (No. 10, I like), on the end. Make it tight enough so that your broach won't run through it, but so that it will carry it up to its place, and stay there. I have had two assistants, both with me nearly 20 years, and they both said they never saw an alveolar abscess in a root I had filled. I remember probably three in that time. It is one of the simplest things I have to do. It is simpler than it is to get ossified pulps opened up. The natural surface of the pulp canal is the best surface to fill. The Glidden drill was spoken of here. I don't think there are any Glidden drills in the market now. It is such a poor drill that it seems to me it is a good thing that they have gone out of use.

Dr. G. W. Cook:

I appreciate the fact that our friends have come from down in the country to give us these papers. Dr. Woolley referred to the evaporation of sandarac varnish. In fact all resinous substances take up and give off water at changing temperatures. Gutta-percha perhaps does that the least of any of those materials. There is not time enough to go into the details of some experiments I made, so I will leave that for a future time.

Dr. J. P. Buckley:

There is just one important point that has been ignored tonight in connection with the filling of root canals, and I will emphasize that one point. I think that all failures, and by failure I take it you mean the subsequent development of an abscess, are not by any means due to imperfectly filled root canals. I have seen dentists fill canals where their conscience did not hurt them if the saliva from the mouth flowed into the canal. I believe that the main thing is to have the canal aseptic before you begin the operation, and then everything that enters that canal must be in the same condition. I have seen dentists take cones from their cabinet and put those cones in a root canal, when they had not even been kept in a clean box. I think we fail in that way more often fhan in any one point in connection with this whole operation. I think most of you are familiar with my method, which differs in no essential particular from some of the methods described here tonight, therefore I shall not describe it; but if I can impress on your minds the absolute importance of having your instruments and canals sterile, even sterilizing the tubulii of the dentin as well as the contents of the canal itself, and using clean, sterile, gutta-percha cones, if that is what you are using, I will impress one point that is of the utmost importance.

Dr. C. E. Bentley:

Mr. President: I cannot let the remarks of the last speaker go by without emphasizing another point, and I have made this point repeatedly. Dr. Buckley is justified in making the demand for sterilization, but sterilization, as practiced by dentists, is almost a farce. You may have sterile instruments, but are you sterile? The moment you touch an instrument with fingers that are infected you immediately render that instrument septic. Let us approach sterility as nearly as possible, but to say we do sterile operations is not the truth. It is septic from the beginning to the end, and I want to say we must be sterile from within out, and such a thing in the practice of dentistry is impossible.

Dr. Buckley:

I must take exception to the remarks of Dr. Bentley when he says that the operation from beginning to end is *septic.* It is easy in the average dental office to fill a canal under aseptic conditions. I will describe my own technique in connection with this matter, and I think I can convince Dr. Bentley that it is sterile practice. In the first place, if I am going to use that thumb and finger a pledget of cotton, dipped in a sterilizing agent is used. I use either a 1-200 solution of sublamin, 1-500 mercury biclorid, or 10% solution of formalin, to which a little borax is added. The gutta-percha cones are kept as clean as it is possible to keep them, being sterilized and transferred to bottles as soon as I buy them. When I am ready to fill the canal I take the cone with my pliers, and put it in a small tray with 95% alcohol. On my tray there is a little aseptic doily. After I have worked my eucalyptol compound in the canal, which contains an agent which has not been mentioned here tonight, and that is thymol, I take these cones out of the alcohol and place them on the aseptic doily, which absorbs the alcohol. Then the cone is put in the canal. Heat is applied, and I try to pack it down as firmly as I can, but I do not push it down. Dr. Allen said he had used both oil of cajuput and eucalyptol, and as far as he was able to determine he found no difference. This is not strange for the constituent of cajuput is cineol which is identical with eucalyptol.

Dr. Bentley:

I applaud Dr. Buckley's method, and I admit that it approximates the condition, but to say that the work is done aseptically is not quite correct. I should like to ask Dr. Buckley how he asepticizes his doily.

Dr. Buckley:

I buy them.

Dr. Bentley:

If you were to put that aseptic doily into a wound there would be in all probability suppuration. They must be boiled and steamed at least 25 minutes before they are considered fit to go into an open wound. Dr. Buckley says he swabs the thumb and finger with bi-chlorid of mercury. Mere swabbing does not asepticize the skin, and if he should even touch his desk or chair he has rendered the area that he thought aseptic, septic. To think that we can under normal conditions practice aseptic dentistry in accordance with the approved methods of aseptic surgery is a mistake.

Dr. Noyes:

Dr. Buckley's description is admirable, and we all ought to do the same way as he describes. He did not say anything about the rubber dam, which should always be used, of course (Laughter). The operations in the roots of teeth are of such a character, and made under such circumstances that we may successfully substitute antisepsis for asepsis, and our disinfectants or antiseptics may be of such efficiency and concentration as may be reasonably expected to counteract the slight opportunity for sepsis which remains after such care as Dr. Buckley has described, so that I do not want you to feel the discouragement which might follow from Dr. Bentley's presentation. We make our operations safe by the careful precautions which Dr. Buckley has described.

DR. JONES:

Mr. President: I have nothing of importance to offer in the correct way of filling root canals except that I wish to ask Dr. Bentley this question. If Dr. Buckley's plan does not meet the approval of Dr. Bentley, I should like to ask him if he can suggest any way by which we can fill root canals in a more aseptic manner. I believe that the material for lining the root canals before inserting the gutta-percha cone, should contain, as a part of its make up, a permanent germicide. I see no objection to the use of such an agent outside of making root canal filling somewhat porous, but I believe this porosity is no greater than that obtained by lubricating the walls of the root canals with oil of cajuput, or some of the other lubricants, as is now the accepted practice. The thing that seems to me to have caused more trouble than anything else, is the failure to remove the entire contents of the root canals. Many operators are led to believe that root canals are clean, when they are not entirely so. A remnant of a pulp is a dangerous piece of tissue, and I believe that these remains left in the root canals are the cause of more failures than ensue from any other cause. Because of the average likelihood of leaving a remnant of pulp tissue in the canals, I think we are justified in accepting a slightly porous canal filling, as will be found in canal fillings having such agents as Thymol, Paraform and any of the lubricants, provided it contains one of these fairly permanent germicidal agents.

DR. OLOF LANGE:

Mr. President: I would like to know what remedy we have at our command that will be a permanent antiseptic in the root fillings. Is there any remedy but bi-chlorid of mercury, and that would probably act as an escharotic? Volatile oils will disappear. If antiseptics are going to do any good then they should not be able to leave the filling, because, if they leave the filling it leaves space for water. The methods advocated in the first paper that was read, are exactly those that I have practiced for about twelve years, and I haven't seen any need to change them yet. But it is impracticable to warm the root canal plugger, that may dislodge the filling. Use cold plugger and blasts of warm air on the filling. Use red gutta-percha if you want to put on a Logan crown you can look and see the red gutta-percha better than the white. One of our greatest teachers advises us not to use burs or drills in root canals, because we are liable to get bone chips in. We can open it by sodium potasium or H_2PO_4 and by slowly working it in we can enlarge the canals.

Dr. G. W. Cook:

Mr. President: I made some experiments to ascertain whether I could fill root canals aseptically. There were only two ways in which I could attain aseptic conditions in root canals, and that was first, by treating root canals for three days in succession with tri-cresol, every time placing a rubber dam in position, and then the tooth was washed with alcohol, bi-chlorid and formalin in order that I might get the external portion of the canal in an aseptic condition. The tri-cresol was placed in and sealed up with cement. The other method is to take the Cochran preparation of gutta-percha, gutta-percha dissolved in chloroform. The chloroform is allowed to evaporate from the mass. The mass of gutta-percha is then mashed and worked with a pestle, and added to that is either the eucalyptol or cajuput, or some of the essential oils. I tried all the balsams, but balsam of Peru is the only one that retains for an indefinite period a disinfectant property. The canals are left practically hermetically sealed with gutta-percha and balsam of Peru. After the preparation is made the bottles are kept perfectly stopped. I found this to be antiseptic by taking platinum broaches and sterilizing the broach by passing it through a Bunsen burner, and inocculating a culture tooth from that. In a few teeth that were to be extracted I did fill the root canals without any special preparation, and disinfected them, and with the exception of the cases where I used balsam of Peru, the canals were not aseptic. The method of using gutta-percha and balsam of Peru is this: You do not discover much shrinkage. Anything that volatilizes at all will shrink. This preparation of gutta-percha evaporates less than any I have seen. I take the balsam of Peru on a glass slab, work it in the canals, and follow that with a gutta-percha preparation, and follow that with cones or points. There is this difficulty, that it is irritating, if it volatilizes; however the soreness that follows the filling of the root may not appear for two or three weeks after the root is filled. In a few instances I have known the tooth to get very sore. After the uneasiness disappears then the tooth is at perfect rest. I have been using the preparation about five years. When Dr. Bentley got to discussing whether or not you could render aseptic the conditions I know you cannot by Dr. Buckley's method because, as Dr. Bentley said, there is nothing in this room or any other room unless it is prepared every day, that is in an aseptic condition. The object of every precaution is to minimize the number of bacteria. There are always two penalties in filling a root canal that you may be certain of. If it makes any trouble you may be certain that you have not disinfected it. The filling of root canals is a good deal of nonsense, in a way. No small root canal I have ever seen yet, that has been sealed properly makes trouble. It is either left infected, or re-infected, if it makes trouble. In the small canals I do not believe there is any liability unless pressure forces the pulp through. As long as there is pressure behind, which must necessarily be, the serum will percolate through and into these canals. The main object in filling canals is to lessen space. It should be disinfected absolutely before it is filled. Balsam of Peru was introduced by a German some years ago. I do not make any claims for it. I have given Dr. Dittmar some of the preparation and asked him to use it. I have used it several years, and I have the first case to find which I rendered aseptic reinfected.

Dr. Hanaford:

In closing the discussion said: I would like to say that when I examined that honey comb, I did not know it was Dr. Kyner's. He must excuse me for not going lightly on him.

As far as dry teeth are concerned, it seems to me that I need only remind you that the profession has been trying for years to obtain, by means of various instruments, devised for that purpose, just that dry desiccated condition which some gentlemen have complained of as being objectionable in the experiment. Dr. Woolley has been using heated broaches as long as I have known him and the dryer the root canals could be got the better he liked it. I am satisfied that we must look elsewhere for the cause of the imperfections in those experimental root fillings.

Dr. Kyner:

It will be noted that most of the men who discussed the papers, took the therapeutic or popular side of the subject and gave little or no attention to the mechanical filling of the root canal, which was the only phase of the subject treated by the essayists. It would be impossible, without encroaching on eternity to attempt to discuss the many subjects that have been talked about here tonight, so I will briefly mention but two points. Dr. Crouse tells us that our methods are "tommyrot," and then proceeds to explain how he seals the apical ends of roots with gold foil cones. He may be able to do it but don't believe he could get a vote of confidence before any dental society on a motion to that effect. If it were possible to reach the apex with a gold cone in a large majority of cases, it would be a dangerous proceeding owing to the high per centage of large foramina and believe that it would be better to fail than to force the gold point beyond the end of the root. It would result the same as a broken broach.

The authorities consulted gave gum sandarac as insoluble in water and in the experiments reported by Dr. Woolley, it may be that the residue obtained from evaporating the water in which the sandarac was immersed was the dust that clung to the crystals. The experiment did not state that the crystals were washed to remove this dust before putting them in the water.

Dr. Allen, in closing the discussion said:

Dr. Woolley has been trying to get dry root canals for a great many years. Dr. Woolley never got a root canal more than relatively dry. You can only get the surface relatively dry, because you have water all through the system.

I would like to know where Dr. Woolley gets the root canal cones that he puts into his bottles. Who made them, and were their fingers sterile?

ODONTOLOGICAL SOCIETY OF CHICAGO.

The annual meeting of the Chicago Odontological Society was held at the La Salle Hotel on Tuesday, November 8, 1910, at 8 p. m.

Dr. C. N. Johnson occupied the chair.

Dr. W. V.-B. Ames, the retiring president, delivered his annual address.

DISCUSSION.

Dr. Truman W. Brophy:

Mr. Chairman: I have been very much interested in the address of the president, and I am in full accord with all he has said regarding the betterment of children in our public schools. The benefits are not in any sense measured by the cleaning and preserving of the teeth. The benefit will be not only in establishing a better hygienic condition of the child, but this will be carried to its home and extended to other members of the family. I am confident that the efforts of these gentlemen will be extended to others who have been somwhat apathetic on the subject.

It is the greatest movement along hygienic lines that has, in my judgment, ever been started. There is no one who can tell the extent of this work or the benefits that it will bring to the human family generally. I believe that Germany must have the credit for this movement, but America has undertaken a work that will be of great benefit to our own country, and will extend not only throughout this continent, but reach other parts of the world.

I am glad the work is beginning so well in Chicago. The work is going on in the Ninety-third street school, and when the history of this movement has been written it will redound to the credit of the Odontological Society, through whose influence it started. The Chicago-Odontographic Society has taken it up, and I am very glad of that. It is a work that should enlist the effort of every man in the profession in Chicago. For my part I think it would be better to have the committee of this society dismissed and the work left under the control of the Chicago-Odontographic Society.

I would like every member of this society to go down to the Ninety-third street school and see what has been accomplished. The president of this society has made contributions to that school which are now being used there.

The first man to show his interest and desire to contribute, was Mr. Bosworth of the Ritter Dental Company, who gave a Columbia chair and a Ritter Engine. The American Cabinet Company gave two cabinets; A. C. Clark & Company gave two fountain cuspidors; Howard & Company, a chair; H. D. Justi & Son, two bracket tables and supplies; Mr. C. L. Bingham, personally, gave two electric sterilizers, operating instruments, and supplies, and Lilly & Company, supplies.

Dr. F. F. Molt has taken charge of the work. He has eight young men dentists assisting him. Dr. Molt and his assistants have examined the children of eighteen schools in the south end of the city and he reports that not more than three per cent of those examined are free from dental caries.

There are five hundred thousand children in this city and a large majority of them are neglected so far as the teeth are concerned.

The Health Department is assisting in carrying on this work. I think the results will be far greater than anyone can foresee. I believe that so great a work as this will be taken up by the authorities of the city, and that they will ultimately make liberal appropriations to carry on the work when they see the beneficial results.

We spend money to preserve the health of the people; we have commissioners appointed to look into the general sanitation of homes; we have officers who quarantine the cities of the country; and yet right here at home infections through the medium of the oral cavity are far greater than those that are imported from other parts. It is a subject so great and broad that the authorities of this city and every other city must take cognizance of it.

Dr. Geo. W. Cook:

Mr. Chairman: It is a very great privilege to be here tonight and hear this subject discussed by our worthy president, who has given us some important facts. I, of course, have thought a good deal about this question, and the means to an end is the thing that has been uppermost in my mind, how it could be done, and done best. In Aurora at the meeting of the Northern Illinois Dental Society, Dr. Bentley read a paper on educating the public. In that paper he outlined some thoughts that were very good. It seems to me the interest of the public and the dental profession would be furthered by keeping the dental profession as far as possible in the back-ground.

First—The dental profession is not in a position to carry out themselves the scientific and economic program. They are prepared to give their technical knowledge and skill for the benefit of those who need it, and demonstrate that the eyes and nose are not the only organs of importance, but that the teeth are important. We know that diphtheritic bacteria frequently exist in the mouth, and this should be brought to our health authorities in a scientific way. The public are of the opinion that this question of germs in the mouth is a big bugaboo that is held up by the medical profession in order to cause vaccination, and so forth. I believe if the school in Cleveland would publish in connection with their reports the bacteriologcal reports it would be a fine thing, and secondly, determine the antiseptics that are to be used, and how they are to be used. The mere taking of the tartar off the teeth does not cure all of this. It only helps, and the public ought to be shown what they must look out for. They say in an empirical way that these bacteria do exist, but the medical profession has no data as to what the possibilities of infection may be, and we are carrying on a campaign on hygiene without knowing very much about why we are doing it other than to get people interested. We ought to accumulate more exact data, and lay it down so that it will be a working basis in the future. That might be done in Chicago, for here we have such a heterogeneous mass of humanity attending school.

I published some few years ago a few investigations of tubercular germs in the mouth. It took two years of close investigation to determine what little data I got there, but it has been made the basis for a great deal of work in foreign countries. I would say above all things when we get this thing started we should try to carry on the work on a definite basis. We all admit that the care of the teeth is of esthetic importance, as a child with a clean mouth has a great deal more pride. The teachers here send children home for dirty faces and hands, without any thought of the mouth. The best people we have are negligent on that point.

If these schools of hygiene could establish something along the line of determining scientific data we would unearth a lot of things at the present time we know nothing about. We need scientific knowledge.

Dr. J. H. Woolley:

Mr. Chairman: I no doubt voice the feeling of all, that we appreciate very highly the courtesy of the evening on the part of Dr. Ames. During the Conclave I met a very interesting gentleman at our Commandery reception, and I learned from him that he was from New York. The subject led up to helpfulness to the poor. His remark was that the heart of the rich could be reached if the need were demonstrated. He went on to tell me of his experience in New York in many cases. I learned that he was state superintendent of the poor of New York. Get the data, so that a lot of rich people know what is being done, and the movement will be helped along. I have for ten years had it in my heart that we are yet to have in Chicago a dental research movement. The gentleman from New York stated to me that there is a gentleman in Chicago who is ready providing he can have demonstrated the need. He said we could reach him, and that is what I am hoping for. I want at some time a symposium by the Chicago Dental Society upon diseased conditions of the mouth that have resulted in diseased conditions of the body. Then get the matter in shape, and there will yet be a research movement for dental science. It is a process of evolution in all these things. People have to be waked up, and I was very glad to hear the report of Dr. Ames.

Dr. P. J. Kester:

Mr. Chairman: I want to thank Dr. Ames for a very pleasant evening. I am greatly interested on this particular subject, the care of the children, which also includes the care of their teeth. Our president has emphasized one phase of the matter which I think is important, and that is, that it is not a matter of charity, but of duty, and as he has pointed out, the work that is already being done, is a good investment, the returns being, increased business for the dentist, and the increased efficiency of the student. When the dentist himself becomes interested and the good results apparent, then the means necessary to carry out the work will be forth-coming.

Dr. C. N. Johnson:

It has so happened in the appointment of the committee by the Chicago Dental Society to undertake this work that the president has insisted on me accepting the chairmanship of the committee, and I have been studying this question with a good deal of care recently, and I believe we are on the eve of a movement in Chicago that will be absolutely revolutionary so far as the proper management of this question of the care of the children's teeth is concerned. Some of the details I have gone into would not be proper to refer to here, but I will say this: I believe from the point of view I have obtained in looking into this question that we are in more need of education of the people, and when I say people I also mean the civic authorities, as to the actual condition of the school children's teeth than we are of establishing any large number of free dental clinics. We want enough dental clinics established to demonstrate what can be done with them. We are in danger of pauperizing the people by indiscriminate charity, as Dr. Mitchell said the other night, but we are in duty bound to aleviate pain. Further than that I would not go except on the recommendation of the school nurse, and we must depend on her to keep us from making the mistake of every charity that has ever been organized. We must demontsrate the actual need of this kind of a movement before we will get the support of the citizens or the civic authorities. Then we must advance an educational campaign that will carry these documents into every home of the city.

In Canada the provincial and dominion governments are taking hold of this thing. When we demonstrate an interest in it in this city we will have the backing of the Board of Health, and we hope to have a dentist appointed as one of the staff.

I have appreciated the president's address because just now it is uppermost in my mind. The dentists must sacrifice themselves in this movement, which I believe to be one of the greatest ever undertaken by the profession.

Dr. Ames: (Closing the discussion.)

I want to call attention to the particular views of this subject just mentioned by Dr. Johnson, that it is up to the dental profession to show an unselfish interest, and give of their means or time to such an extent that it will be recognized that they are doing much in an unselfish way. When you do that it will be known to your patients, and through them a sentiment will be created which will react to the benefit of the cause. There is an illustration in Boston, where a man of means who had no direct family ties became interested through his dentist in this very matter, and as a result the Forsyth Foundation will have about $660,000 as a beginning. Any of you who have well-to-do patients can interest them. There is no special reason why we should turn down anything offered. This particular case in Boston was first a matter of a half a million dollars. It had to be incorporated, and was incorporated as a two million dollar organization, while they had a half a million cash. A brother of the donor, Mr. Forsyth, was a trustee of the fund, and was sufficiently interested to give the property upon which the building is to be erected, which was worth $160,000. That is just an illustration of what can be accomplished in an unselfish manner. Because of this Forsythe foundation there will be special instruction offered in Boston to prepare young men for clinical work amongst children of the class needing to depend on the charity clinics. Data and knowledge gained in these clinics will be of great value to dental science.

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EDITORIAL.

THEN AND NOW.

The article under this title by Dr. James Truman, which began in our January issue and was concluded in February, vividly brings to us some of the conditions under which dentistry was struggling half a century ago. We are sometimes inclined to lament over the lack of professional spirit in the rank and file today. We complain that there are many problems yet unsolved which, if the profession had lived up to its highest possibilities, would have been solved long ago. We say that dentistry is not so broad and philanthropic as some of the other professions, and we hang out our defects for every flitting daw to peck at. And be it said in passing that there is no lack of daws to do the pecking. Possibly all of this fault-finding is useful. There is nothing so detrimental to the advancement of a profession or an individual as a calm complacence and a perfect satisfaction with things as they are. But when certain individuals in the profession make it a point to belittle the dentistry of today, when they never lose an opportunity to slur their own calling, as some of them do, it might be well for them to study carefully the conditions which Dr. Truman portrays as existing when he began to study dentistry. Compare these as he does with what is being accomplished today and we will see that within the experience of a single lifetime such a change has taken place in the character of the service which is being rendered the people that no man need hang his head when the name of dentistry is being mentioned.

It is true that legitimate criticism is a tonic, and should be welcomed by every man who is desirous of advancement, but to be continually harping on the shortcomings of either a man or a profession becomes after a time depressing and does more harm than good.

We need a little encouragement once in a while as an inspiration to bigger and better things, and more particularly do we need to point out to the young men of today the possibility of advancement in the future as exemplified by the strides made in the immediate past. When this is done in the right spirit it will enthuse our young men and place them in a better mood for research and study than will the continual harping to which we are so frequently treated. Let us manfully acknowledge our faults as we find them but let us not befoul our own nest by slurring dentistry at every turn.

PIONEER DENTISTS OF CHICAGO.

In this issue of the Dental Review is an article on the pioneer dentist of Chicago, Dr. Peter Temple, by Mr. Frank Du Souchet, who has been doing a most notable work among the dentists of Chicago in looking up the early history of the profession in this city. It had always been supposed, and had so been published many times, that Edwin Judson was the first practitioner here but Mr. Du Souchet has shown conclusively that at least four men preceded Judson. According to Mr. Du Souchet, Peter Temple was the first man in 1833 and in following issues he will write of other pioneers in the order of their location in Chicago. Mr. Du Souchet has done for dentistry a work that no man connected with the profession ever has attempted in this city, and which in all probability never would have been done so thoroughly by any other. Assuredly no dentist would have had the time and patience to search for long-buried records and delve in musty volumes day after day as has Mr. Du Souchet, and the present and future generations of dentists owe him a debt of gratitude which can never be fully repaid. Not only has he learned and recorded the particulars of the early practitioners here but he has, after the most painstaking and patient search, obtained photographs of all these men and has collected them in a group so that for all time they are secure against loss. The time when such a work was possible had well-nigh expired, and had not Mr. Du Souchet appeared at the time he did and taken up this work in the spirit of the true and faithful historian—as he did—many of these facts and faces would have been forever lost.

He writes in a most entertaining way of the experiences of those early days, and we feel certain that our readers not only in Chicago but elsewhere will be intensely interested in what he says.

THE EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 6.)

My Dear Boy: I am delighted to see you back in good time for your junior year, and to note that you passed all your freshman examinations so successfully. Of course you might have stood higher in anatomy, but that happens to be a junior subject as well and you can raise your grade in it this year. You will fall in line with your work more readily this session than last and in many ways it will come easier to you, but remember there is more to do. The difference between the freshman and junior years is this: During the freshman year you are laying the foundation with not so very much to do in the line of real dentistry and not such a very great deal to do in any line except to become familiar with college work and get up a few of the foundation subjects. In the junior year you get more into dentistry and do considerably more work but you are accustomed to it and can accomplish it to better advantage.

This year will prove the most uneventful of the three, and I shall say little about it. During your first session every thing was new and the novelty of the thing kept you entertained, in the second year it is more routine, but when you approach the senior year then comes the real tug of war. You get into your practical work in earnest and the final examinations for your diploma are constantly staring you in the face.

But if you enter your senior year with a clear record—no conditions of any kind against you—I can promise you the most interesting year of your college course. You have by this time developed into quite a boy. I can see such a wonderful change in you since that first day when you entered the college. Your pin feathers—but never mind, I am in no mood to embarrass you. If you start in on your senior course with a will to get the very most out of it you will gain more knowledge of the practical sort which you can utilize to your advantage in after years than you ever gained before in any similar period except that first eventful year of your life. No single year in all your future experience can quite equal that first year, but the final session in college contains so many possibilities for you that I wish to call your particular attention to it.

Do not shun the "abscess row." It is so hard to convince seniors that the treating of diseased teeth and gums is a profitable business for them in college that they avoid cases of this kind and will sit in a row on the benches waiting for patients without abscesses, while any number of the treatment cases go begging. This is a greivous mistake, as many a boy has learned to his sorrow after graduation. I have received letters from many of them after they have been engaged in practice a few years and the burden of their cry is: "Tell the boys in college not to ignore the abscess row, but take every case that comes to them. Those are the cases they will encounter in practice and they will need all the practical experience with them that they can get."

Teeth are not consigned to the forceps in these days merely because they are abscessed and the man who meets the demands of a modern practice must be able to manage these cases successfully. And the college is the place to gain this experience. If you meet a case here that you cannot cure it is not such a very serious matter. You have the demonstrators to fall back upon for suggestions, and even if you fail in the end it will not do you the harm that a similar failure would do you in a private practice. The fact is not heralded around the neighborhood to the especial delectation of dear old Mrs. Grundy, and your reputation is not injured in the minds of the public. My advice to you is to accept the very worst cases that are offered, and study those cases from every possible point of view. Do not follow the demonstrator's instructions like a mere automaton, but study the relation of cause and effect and learn above all things to observe phenomena in these diseased conditions. The practice of dentistry in its highest functions is a continual study of conditions, and the place to begin that study is in college where there are so many cases of all kinds constantly coming into the clinic. You will not see in years of private practice such an array of cases as will come into the college, during your senior year, and now in this connection I am going to make a confession to you. I intimated when I started these letters that I would acknowledge some of my own mistakes to the end that you might profit thereby and avoid the errors which I fell into, and one of the most serious mistakes I made was in my failure to take advantage of all the clinical facilities at my command in college. I merely performed the practical operations which were demanded of me by the curriculum, and ignored almost entirely the privilege of studying the cases which the other boys were operating on. The fact that all the others did the same thing was no justification, and I suffered for my own neglect most severely in my early years of practice. I might well have saved myself much needless worry and many failures if I had been better equipped by actual experience in the management of difficult cases as I might easily have been while in college.

I shall never forget the discouragements of those early days, and had it not been for one incident I would have been seriously depressed. This incident may be worth relating, to show what a small thing may give a young practitioner courage. I had been told by one of my teachers that if a third molar was abscessed it would better be extracted. It was probably an off-hand remark, not intended as orthodox teaching, but somehow the statement stuck to me and I never forgot it. One day a dear little lady came in with an abscess from a third molar. She had a very high appreciation of the value of her teeth and I knew that any suggestion of extraction would horrify her, and besides, on my own behalf, I had not the heart to place a forceps on that tooth. An older practitioner had treated the tooth in an effort to save it but had given it up. The outlook was not promising but I told her I would do the best I could. I went at that tooth with a will, cleaned out the chamber and canals most carefully, nearly breaking my neck and my back to get down down into them—I could not handle the mouth mirror so readily in those days as I learned to later—and promptly cured the abscess. No, I take that all back, I did not cure that abscess at all; I simply removed the cause and killed the irritant, giving nature a chance to cure the abscess, which she promptly did. Remember, my son, that with all the skill you can employ you can never effect a cure of the simplest disease. Nature is the only healer, but sometimes nature needs your aid and needs it badly to eliminate the forces that are working against her. The more intelligently you learn to employ this aid the more frequently will you be credited with working wonders in your practice and the wider will your reputation extend. Even after I had moved six hundred miles from the town where I treated this tooth, that little lady continued to be my patient—coming to me at intervals when she could—and I had the pleasure of seeing that tooth still doing good service twenty-five years after I had filled it with not a single recurrence of the sinus.

When that abscess healed up and the gum began to look healthy, it almost made a new man of me. It did seem as if I had in reality accomplished something for humanity, and I want to tell you, my boy, that no kind of financial reward can quite take the place of the supreme satisfaction to be obtained from relieving human suffering and seeing disease disappear under your ministrations. You will never be able to realize the elation of these moments in your life till you have experienced them for yourself, and my fondest wish for you is that it may be your good fortune to experience very many of them.

Sincerely your friend,

THE PRECEPTOR.

C. N. J.

CORRESPONDENCE.

NEW YORK LETTER.

My dear Mr. Editor:—

Last month, too late to be included with my letter, the Second District Society entertained another learned man of the West, one whom we of the East appreciate as much as his confreres at home, but unfortunately it is not our privilege to know him as intimately. But withal the little association his short stays allow, his sterling qualities make such an indelible impression that we like to say that we too love him. I am referring to Prof. G. V. Black, to whom we had the pleasure of listening after the sumptuous feast in his honor at the Union League Club of Brooklyn, early in January.

The occasion assumed almost the proportions of a banquet. Dr. Black's old friends were much pleased to find him in so much better health than he has seemed at any time for some years past. He seems to be qualifying for that enviable class of "young old men."

The President of the Second District Society, Dr. Ottolengui, is managing that body on such a large scale and is attracting such large audiences that if it keeps up there won't be hall space large enough for the attendance. Dr. Black announced the subject of his paper as the "Beginnings of Pyorrhea and Their Treatment."

The subject was treated in a different way than was generally expected. It was not a treatise on oral prophylaxis as generally understood, but considered especially deposits of salivary calculus and how to prevent them. It also dealt with the beginnings of pyorrhea from other causes and their prevention, and the misuse of antiseptics. Dr. Black illustrated the whole with many lantern slides.

Dr. Black's opening remark was, that if he had not had considerable liking for the Second District Society he would not have come so far to read a paper.

He announced that the paper was written on original lines, inasmuch as he would tell us what he thinks and not pay any attention to what other people have said on the subject.

"The pathology of the disease is peculiar to itself, as peculiar as caries." "It has been pretty hard to understand these tissues." "The gum tissue rises and exists only for the preservation of the teeth." "After extraction these tissues are removed as being of no further use." "The attachments of soft tissues are peculiar to these organs." "If these attachments fail all other (tissues) fail as a result." "Cementum is repaired by being built on by peridental membrane." "Neither dentin nor cementum ever repairs itself." "Injuries to the Gum Septum" was one of the divisions of Dr. Black's paper and there are very many of them. In most all cases no pain attends until the life is crushed out and the case becomes incurable before being recognized. "The profession have not recognized that these small injuries are very grave, and yet two-thirds could be cured if taken in time."

Dr. Black felt some surprise when patients who were sent him reported that dentists had said that the condition was of no consequence or was incurable. "As the disease progresses other contact points become leaky and the disorder spreads involving other teeth and soon pyorrhea adveolaris is developed." "When once the upper incisors become mobile I have never seen a case get well; it may take a quarter of a century but it comes."

Another diversion of his paper was Examination. "Seek for beginnings. The rule must be to make a careful ocular examination, which must be fortified by careful examination with instruments.

The sense of touch is one of the best ways of confirming instrumental examination."

"Try to restore all contact points." "If there are loose teeth, pack in gutta-percha until tissues heal, then subsequently fill permanently; the best point gained by this is the rocovery of the tissues." "Never try to make permanent fillings in such teeth until all soreness disappears." "Patients must be taught how to care for their teeth (by demonstration)."

"These conditions are all treated without medicines." "Calculus is of three kinds, salivary, serumal and pus." "The intrinsic nature of all are alike."

"Before deposits of calculus can take place there are agglutinated adhesions which coagulate, becoming like white of egg—when subjected to 212°." "It is transparent, soft and greasy to the feel." "It readily breaks up with brush and water." "The deposit of calculus takes place in this and is rapid."

"A saline cathartic (Epsom salts) will stop it for a short time."

"In my own case I found that the reduction of the quantity of food by nearly one-half, but not to go hungry, and Fletcherizing—all deposits disappeared."

The cleaning of teeth should be done by down stroking the upper teeth and up stroking the lower teeth and use plain water. In most cases the use of a syringe is necessary to clean out interdental spaces. No antiseptics are prescribed, depending entirely upon cleanliness.

Treating of bacteriology, Dr. Black referred to the researches of Pasteur, Lister, Koch and Metchinikoff.

Another extract from his paper was that "there can be no pus without bacteria."

"We should study the tissues themselves in their efforts of repair. Miller could not keep his own mouth sterile."

Dr. Black spoke to some length about antiseptics and their power for good or evil. As might be supposed from an extract or two preceding, he believes now in their very limited use and said that many surgeons are discarding antiseptics.

He told us the story of a relative who horribly mutilated his hand and arm, which for a time was thought could not be saved. An attempt was made by placing the injured part in a one per cent solution of carbolic acid in which it remained for several weeks, when it was removed to allow of healing it was many weeks before granular tissue formed. Months were required where weeks should have been sufficient. The carbolic acid had reduced the powers of the cells to recuperate.

"Time is ripe to abandon many of the pus destroyers which the world has regarded as the best. Normal salt solution is used now by most surgeons."

"They use no antiseptics whatever in appendicitis."

Dr. R. G. Hutchinson of New York opened the discussion with commendations and endorsements of Dr. Black's paper. He said in part that "he has brought us demonstrated facts to teach us to recognize disease before it reaches the grave stage." "I am glad he has confirmed my ideas."

"The function of the gum is to attach itself to the alveolus and not to the root."

"More depends upon the patient after operation than upon the operator." "Glad to have him say that pyorrhea is always the result of an injury."

"If *one* point is seen to exist in a mouth it may be assumed that others will be found."

"Malocclusion is one of the most important factors in the cause of the disease. It allows of accumulation of food and consequent injury."

"Nothing better to restore function of the teeth than proper use; also use of tongue and lips; they normally stimulate the gum tissue."

"Generally speaking the less antiseptics used the better; but antiseptics are necessary in some cases."

Dr. Ferris, of Brooklyn, was another to add to the discussion of the paper. He commented not unfavorably upon Dr. Black's doing away with tooth powders and antiseptics in the treatment of these diseases.

Dr. L. C. LeRoy, of New York, was called upon to say a few words, which he did in a general way, adhering to the text of the subject.

On Tuesday, February 14, at the Academy of Medicine, the First District Dental Society held its meeting. The essayist was Hart J. Goslee, of Chicago, that genial, serious, honest, character who too has captivated us all. I often wonder whether New York contributes as much to the interest of Chicago dental gatherings as does the Chicagoans to ours.

Dr. Goslee's paper was well expressed, well balanced and well presented, with a series of models to illustrate the points he wished to impress us with. The subject was "The influence of the casting process upon the technique of crown and bridge work," in which he compared the effects of soldering of such work to casting. As was announced in the notices which all members received, Dr. Goslee presented for the first time some special forms of replaceable teeth and facings. The doctor's paper was built in particular upon the qualities of replaceable teeth and facings for crown and bridge work.

Those he showed present distinct qualities for strength over anything we have. They consist of a combination of dowel principle (hole in center) and box (reinforcement built up about dowel recess). They are to be known as the Goslee interchangeable tooth. A comment I would make is that the sides of the "box" are not ground parallel or even baked so, but diverge slightly. It would be a small matter for those using the facings to do this for themselves.

Some of the things said by Dr. Goslee are that "crown and bridge work and lesser restorations must sooner or later occupy a specialty."

"Unwarranted display of gold is absolutely reprehensible."

"The present methods reduce the mutilation of teeth to the minimum."

He spoke of the general failure of bridge work as we see it today and recounted some of the causes, which in particular was faulty root preparation, faulty abutments, occlusion, mechanics and dynamics.

Broken facings were set down as due to weakness of the facing, or made so by heating again. A cemented facing was not dependent upon the pins only for retention as was the soldered.

Dr. Goslee made a strong point of determining for each mouth its needs; whether a fixed or detachable appliance. By detachable he meant one that could be done so easily by the patient.

"The vanity of the patient should never influence us."

"Failures are unpardonable."

The most perfect method to be found was of course in the casting process.

The attachment of porcelains, even by casting, is technically wrong. The elimination of these features by replaceable teeth is the only solution.

Another point made is that the color number and form number should always be kept, if not duplicate teeth.

Crown work and bridges should have a technique which insures accuracy by the impression and die method.

Dr. Goslee described his method of taking an impression with modeling compound of the end of a root to be restored with a crown. This impression is for the making of a fusible metal die or amalgam die for swaging the cap and band, which is made of 36 gauge pure gold. The band is replaced on root, the dowel fitted to place and waxed, invested and soldered.

When crowns are used as abutments for bridges a band must always be used. If the attachment is an inlay, always have a pin in the root.

Speaking of removable bridge attachments, he said that cast clasps were not practicable because of the molecular change which takes place in the metal in the process.

In closing Dr. Goslee paid tribute to the genius of the one who made such improvements possible.

Dr. Fred A. Peeso, now of New York, opened the discussion. He said that in the main he agreed with the essayist, but one difference he had to make was in the use of soldered work as having strength over pure gold castings. Accuracy in casting is superior though.

He thought, too, that most of crown and bridge work was rather a detriment than a benefit.

The treatment and filling of pulp canals he felt required more time and care than many were giving.

Dr. Peeso paid high tribute to Dr. Taggart.

Dr. Van Woert expressed himself as heartily in accord with Dr. Goslee. The casting process is best but can be productive of failure. Long bridges are liable to sag in stress of mastication, but that can be overcome by cutting out under the dummies and filling in with solder.

In cementing facings he advises cream white cement as giving best color results.

"It does my heart good," said Dr. Van Woert, "to hear Dr. Goslee say that he has come to the impression method."

In taking the impression of a root Dr. Van Woert uses a copper band somewhat larger than the root. It is trimmed to follow the line of the gum. By forcing impression compound into it and against the root a right angle pressure is obtained on the impression material which insures an accuracy that nothing else will .

Yours truly, "THE BOROUGHS."

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Keep Pumice Off Clothes:—Mix some soap in water until foam is produced; then add the pumice to it, and daub the mixture on denture which is being polished with brush.—J. H. Pearce, Peoria.

To Wet Wheel While Grinding Teeth:—To keep stone wet while grinding teeth, affix a small piece of sponge by means of a rubber band to the middle finger. This is easily held in contact with the wheel and keeps wheel wet as well as clean.—R. H. Daniels, Peoria.

Root Canal Filling of Sandarac Varnish and Gutta-Percha Points: —The varnish is cut with alcohol, to which oil of cloves and oil of cassia is added. After drying with alcohol the canal is pumped full of varnish and a warm gutta-percha point is pushed into the canal. It is claimed that the varnish adheres to the walls of the canal while the chlora-percha draws.—G. A. Aigley, Farmington.

Advice To Patient:—Tell your patient, when inserting a lower denture, that it is far more liable to irritate the membrane than an upper denture. That if it does irritate, "can't eat," to come at once for relief, but come with the teeth in the mouth and not in the pocket, so you can locate the irritated spot.

While it is easy to see, it is sometimes difficult to locate in the mouth. Place a little moist whiting on the spot with a spatula, put in the denture and on removing you have it located on the plate. Relieve with small carborundum.—L. P. Haskell.

Investing An Inlay:—For investing the wax impression for an inlay, dummy for a bridge, or any such piece, I have had splendid results by first painting the impression with a mixture of extra fine silex and plaster—equal parts—and then using a coarser investing material, such as Brophy's. I paint the impression generously. With this method I find the air is more readily expelled and the inlay or dummy smoother.—K. C. Morpeth, New Zealand.

To Supply A Missing Upper Lateral Incisor:—To do this operation with permanency, artistic effect and with a minimum sacrifice of tooth structure, one method is as follows: Select proper shade and shape of Steele facing, fit in mouth, trim up backing to suit, prepare cavity in cuspid, either Carmichael or post inlay. Prepare and have in place the wax model, flow wax on lingual surface of backing; with facing and backing adjusted, place in position and with warm instrument unite wax on backing to wax model of inlay. Carefully remove first the facing and then the wax and backing, invest and cast. This can be cast and set at the same sitting if necessary.—E. S. Best, Minneapolis.

The Vulcanite Plate:—Plaster of paris is the most reliable material for impressions and it should be used at a consistency which will not press any soft tissue out of place. In mouths of unequal density, the impression should be relieved on high, hard spots or the plate will rock. When the model is made it should be trimmed neatly and evenly and handled carefully to preserve its surface. No good work ever comes from rough, battered models, or from the workman who is ankle and elbow deep in plaster. It might be said that the first requirement for good work is a clean laboratory.—Mark G. M'Elhinney, Ottawa, Canada.

Ammonium Fluorid As A Tartar Solvent:—While I have not had long nor extensive experience with this agent as yet, in the few cases tried so far, a degree of cleanness and smoothness to the touch of a fine explorer is *easily* obtained, which is next to impossible of attainment without it. By using the Beedle Syringe it is easy to so regulate the amount of liquid used that there is no soreness of the tissues from its use, and almost no disagreeable taste. Fill syringe about 1/6 full, give set nut ¼ turn, insert to the bottom of the pocket and press the plunger. Carry the point around the tooth and the liquid will follow it and reach the deposits. I treat 6 or 7 teeth and then start scaling the first. I have found it of little help in removing the heavy masses of deposit that sometimes occur, but this heavy scaling done, ammonium fluorid is of great value in getting that degree of cleanness which makes the difference between success and failure.—R. G. Joslin, Minneapolis.

The Casting Ring:—For investment materials of the present day there is a call for an inside formation of some kind to prevent the investment from slipping out of the ring in handling, due mostly to the ring expansion under heat. This arrangement usually takes the form of a groove, chime rim at the bottom, or a gradual taper of the ring. The groove seems most practical and if this guard could be arranged near the end of the ring opposite to the crucible it would answer every purpose, be easier to keep clean and be below the stress where it would prevent cracking. The frequency with which cracked investments occur when this offset is placed on a level with the wax model suggests that the pressure incident to the casting process was sufficient to force the investment below the groove downward and produce a crack at that point, for if a ring will expand in circumference sufficient to loosen its contents, it will also expand lengthwise and protrude beyond the investment slightly, which being held central gives room for the investment below to drop slightly under pressure and occasionally cause a crack.—C. N. Thompson, Chicago.

The Use of Diatoric Teeth For Crownwork in Combination With Acolite :—This type is more especially adaptable in the molar and bicuspid region. Prepare the root as for any ordinary bandless crown, carrying the preparation beneath the free gingival margin, and countersinking an inlay cavity preparation in the root canal to insure the completed crown taking but the one position. Select a Diatoric Tooth suitable for the case and grind the neck on the buccal aspect so that it fits snugly beneath the gum. Fit a Davis post in the root canal or canals, leaving it sufficiently long to prevent the Diatoric from fitting up tightly on the lingual aspect of the root. Fill Diatoric with inlay wax, insert Davis post in same and press up firmly to place on the root. Chill, remove and trim off excess wax, and replace to insure perfect adaptation. Attach sprue wire and invest. Heat to redness slowly and allow temperature to decrease until inlay ring can just be held in the hand, and cast with Acolite in a vacuum machine to obtain the best result, or by pressing a pad of mouldine over the molten metal. The Acolite should be heated in a ladle and poured in the ring, and the flame not allowed to come in direct contact with the metal. If the inlay ring is too hot prior to casting an oxide is produced on the Acolite which it is impossible to remove. If the technique of this style of crown is carefully adhered to, it makes an exceptionally strong crown.—A. Dangar Burne, Buckland Chambers, Liverpool St., Sydney, N. S. W., Australia.

MEMORANDA.

ILLINOIS STATE DENTAL SOCIETY.

The forty-seventh annual meeting of the Illinois State Dental Society will be held at Peoria, May 9, 10, 11 and 12, 1911. J. P. Luthringer, chairman local arrangements committee, Peoria; J. F. F. Waltz, secretary, Decatur.

W. D. MILLER CLUB OF BERLIN.

At the sixth annual meeting of the W. D. Miller Club of Berlin, Germany, the following officers were elected for the ensuing year: Lee M. Walling, president; E. Lawley York, vice-president; A. Y. Culver, secretary-treasurer.

ALUMNI ASSOCIATION OF THE ST. LOUIS DENTAL COLLEGE.

The annual clinic of the Alumni Association of the St. Louis Dental College will be held in the college building on Saturday, April 22, 1911. All ethical practitioners are cordially invited to attend. Francis P. Mahon, secretary.

VIRGINIA STATE DENTAL ASSOCIATION.

The Virginia State Dental Association will hold its forty-second annual meeting at the Jefferson, Richmond, Va., June 14, 15 and 16, 1911. There is a very attractive program being arranged and all ethical dentists are invited to attend. W. H. Pearson, corresponding secretary.

INDIANA STATE DENTAL ASSOCIATION.

The fifty-third annual meeting of the Indiana State Dental Association will be held at Indianapolis, May 16, 17 and 18, 1911, at the Claypool Hotel. Plans are being perfected for a great meeting. C. D. Lucas, president, Indianapolis, Ind.; Otto U. King, secretary, Huntington, Ind.

SOUTHERN BRANCH NATIONAL DENTAL ASSOCIATION.

A complimentary dinner will be given by the members of the Southern Branch of the National Dental Association during its meeting in Atlanta, Ga., April 4, 5 and 6, to Dr. Frank Holland, of Atlanta, Ga.

THOS. P. HINMAN, Chairman.

DEATH OF DR. L. D. SHEPARD.

We have just learned of the sudden death of Dr. L. D. Shepard of Boston, at the Wadsworth Hotel, of angina pectoris. Dr. Shepard was one of the commanding men of the profession in the East and his death is a serious one to dentistry. We regret that we cannot, at this time, give greater details of his life and work.

MISSOURI STATE DENTAL ASSOCIATION.

The forty-sixth annual meeting of the Missouri State Dental Association will be held in Joplin, June 13, 14 and 15. An elaborate program is being prepared and indications are that this will be the best meeting ever held by the association. For advertising space, program or other information, address Dr. J. A. Cotton, chairman of the executive committee, Joplin, or Dr. S. C. A. Rubey, Secretary of the Missouri State Dental Association, Clinton.

THE KENTUCKY STATE DENTAL ASSOCIATION.

The forty-second annual meeting of the Kentucky State Dental Association will be held at Owensboro, May 25, 26 and 27, 1911. This meeting is to be the last state dental society to hold its annual meeting, according to the circuit between Iowa, Illinois, Indiana and Kentucky; hence we expect to have an unusually large exhibit, as well as a good program. All members of the profession are cordially invited. W. M. Randall, Secretary.

ALUMNI ASSOCIATION, WASHINGTON UNIVERSITY DENTAL SCHOOL.

A reunion and clinic of all graduates will be held under the auspices of the Alumni Association of Washington University Dental School, April 10 and 11, at the college building, Twenty-ninth and Locust streets. An unusually interesting program is in preparation and the meeting promises to be the best in the history of the school. All graduates should mark the dates in their appointment books and make special effort to be present. They will be repaid for the time spent. All ethical dentists are invited to attend. R. A. Harris, E. A. Woelk and W. H. Scott, publicity committee.

INSTITUTE OF DENTAL PEDAGOGICS.

At the annual meeting of the Institute of Dental Pedagogics, held in Washington, D. C., December 27, 28 and 29, 1910, the following officers were elected for the ensuing year: President, Dr. Donald M. Gallie; vice-president, Dr. H. E. Friesell; secretary-treasurer, Dr. Fred W. Gethro, 917 Marshall Field Building, Chicago. The next meeting will be held in Chicago and the time has been changed to one month later, the dates being January 24, 25 and 26, 1912. Fred W. Gethro, Secretary-Treasurer.

WARNING!

Reports have reached us that an agent for "Marjorie" is going over the country claiming to represent us as general agents for that preparation, endeavoring to induce dentists and dealers to purchase on the strength of our alleged warranty, instructing them to try the material and return to us if not satisfactory. Notice is hereby given that we are not agents for "Marjorie"; have no connection whatever with its manufacture and sale, and are not responsible for any representation claimed to have been made as stated above.

Should any of the preparation be returned to us it will not be accepted, nor do we warrant it in any manner or degree. Very truly,

The Ransom & Randolph Co.

RECENT PATENTS RELATING TO DENTISTRY.

961854. Ingot mold, Emil Gathmann, New York, N. Y.

963418. Dentist's flask, James B. Buchanan, Chicago, Ill.

963541. Artificial teeth, Robert Galloway, West Philadelphia, Pa.

963595. Seat attachment for barbers' chairs, Angelo R. Lerro, Philadelphia, Pa.

963172. Dental plate, Jacob Petry, Pittsburg, Pa.

963648. Artificial tooth and crown, Charles W. Plumley, Parkersburg, W. Va.

963794. Dental waste-receiver, John J. Moffit, Harrisburg, Pa.

965309. Fountain tooth-brush. Frederick L. MacDonald, Waltham, Mass.

965246. Tooth. George E. Stallman, Fort Sam Houston, Texas.

965266. Artificial teeth. Friedrich A. Wienand, Pforzheim, Germany.

965267. Composition for use in burning artificial teeth. Heinrich Wienand, Frankfort-on-the-Main, Germany.

966369. Investment-holder for dental soldering. James F. Thompson, Pittsburg, and H. S. Hanstine, Ambridge, Pa.

966637. Head-rest. James H. Akin, Wichita, Kan.

967873. Apparatus for swaging dental plates. Carl G. Franke, Monroe, Mich.

967413. Tooth-brush. Ellsworth L. McCain, Detroit, Mich.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

DEATH OF DR. BAREFOOT.

Dr. William Barefoot, Litchfield's pioneer dentist, died at Victoria, Texas, Saturday morning, January 14, aged 72 years 8 months and 2 days. Dr. Barefoot practiced dentistry in Litchfield, Ill., for forty-two years in the same office, in the Masonic building of that city. During his life here, besides the practice of his profession he held many positions of trust, serving Litchfield both as alderman and as mayor. He was interested in a number of business enterprises, being one of the organizers of the Litchfield Marble and Granite Company. He was a member of Charter Oak Lodge, A. F. & A. M. and the Royal Arch Masons, and of the Sidney V. Phillips Post G. A. R. He is survived by his wife, one daughter, Mrs. C. O. Richards, of Litchfield, and two sons, Carl of East St. Louis, and Ralph of Litchfield, and one sister, Mrs. Margurette Hedges, of St. Louis, Mo. Dr. Barefoot was an honorary member of the Central Illinois Dental Society and during his professional career, held one of the largest practices in central Illinois and was looked up to by all the younger practitioners in this section of the state.

ALGY F. STRANGE.

NATIONAL DENTAL ASSOCIATION—SOUTHERN BRANCH.

The Southern Branch of the National Dental Association will meet in Atlanta, Ga., April 4, 5 and 6 at 10:00 a. m. Headquarters will be at the Piedmont Hotel. All business sessions will be held there, and the manufacturer's exhibit also. The railroads have given the following rates: A fare and one-half plus fifty cents, in all territory south of the Mason and Dixon line, and east of the Mississippi, provided there are two hundred attendants who travel by rail. Those living outside of this district will please communicate with the corresponding secretary, Dr. W. G. Mason, Tampa, Fla., as to rates attainable. The various committees are hard at work, and the meeting promises to be an exceptionally good one. The time selected for the meeting is ideal in this section, and as it is well in advance of the commencement exercises, it is expected that we will have an unusually large attendance. A more complete announcement will be made in next month's journals, but it is well to make your other arrangements fit in with these dates.

C. M. Barnwell, Jr.,
Chairman of Committee on Arrangements.

WORK OF THE NEW YORK STATE BOARD OF HEALTH ON ORAL HYGIENE.

After two conferences between Dr. W. A. Howe and Dr. W. A. White and Dr. Herbert L. Wheeler it has been decided that the first work of the dental consultants and lecturers of the New York State Board of Health will be to secure the necessary equipment for illustrated lectures. These lecures to be given, as are others authorized by the State Board of Health to further the work of educating the public to maintain a more hygienic condition of the mouth and teeth. The lectures being a part of a series which are authorized by the State Board of Health on the question of general hygiene. For the present, town and city authorities, boards of health, boards of education, and so forth, in the state of New York, who wish it, will be able to obtain the services of Dr. White and Dr. Wheeler as lecturers on the subject of mouth hygiene. As the work expands and as funds are appropriated by the state it is hoped that the work of the present consultants and lecturers will be given over entirely to organization and that many more dentists may be eventually put in the field to carry on the educational work throughout the state of New York and to advise and assist health and school authorities and dental organizations in the necessary work of establishing clinics for attending to the practical part of dental troubles. Hospital, health and educational authorities, also dental societies who would like the assistance and co-operation of the State Board of Health on matters pertaining to oral hygiene should communicate directly with the New York State Board of Health at Albany, New York.

Herbert L. Wheeler.

THE HYGIENE OF THE TEETH.

(By Dr. Schaeffer-Stuckert, Frankfort-on-Main.)

The International Hygiene Exhibition, Dresden, 1911, has assigned a special department, with practical and scientific exhibits, to "Diseases of the Teeth." Thus due and gratifying recognition is paid to the hygiene of the teeth, that young branch of dental pathology and practice which is making vigorous growth. Although the hygienic efforts of dental surgeons and their active care for the general welfare of the people are of comparatively recent date, the representatives of dental hygiene have achieved success that deserves to be demonstrated in an international exhibition for hygiene. The chairmanship of the department "The Diseases of the Teeth," has been accepted by Professor Dr. Walkhoff; the vice chairmen will be: Professor Dr. Dieck, Berlin; Professor Dr. Jessen, Strasburg, I. E.; and Dental Surgeon Dr. Schaeffer-Stuckert, Frankfort-on-Main. The program of the department will embrace everything that comes under the head of, or has reference to, the hygiene of the teeth; the object being to give a scientific and complete survey of the importance of the surgeon-dentist's sphere of work. This program will be conveniently arranged in two principal parts. In the first the visitor will find ocular demonstration of the causes and consequences of bad teeth; in the second he will be shown to what extent and in what way decay of the teeth, which is a widespread folk-disease, can be combated, and how far hygienic science, as applied to the teeth, has hitherto worked advantageously.

The causes of bad teeth are manifold, and closely connected with questions of general hygiene, of the care of the body, of food hygiene, and cognate matters. Here, therefore, side by side with the ocular demonstration of the development of the jaws and teeth and of their finer structure, will be seen the pathological appearances that are attributable to faulty development and illness or weakness in general. Here also opportunity will be afforded of showing the value of "orthodonty" (the regulation of teeth and jaws) which has become so important in late years.

Reciprocally, however, the diseases of the teeth react injuriously on the human organs which hygiene sets itself to keep in a sound condition. Therefore the combating of decay in the teeth—or, as dentists call it, the keeping the mouth healthy—must be described as one of the measures, or means to an end, of hygiene. Stomach and bowel diseases, tuberculosis, and infection in general, are among the after-consequences of caries.

The special province of the hygiene of the teeth is to combat the widespread and erroneous idea that the health or ill-health of the mouth is of secondary interest, and to prove that the condition of each individual mouth is not a matter of indifference to hygiene in general. Dentists have naturally recognized first their social mission, and do not consider that combating decay of the teeth and its consequences, still less that scientific inquiry into its causes and into the extent of the evil, are their tasks. It is here that the names Röse, Jessen, Michel, Lenhardtsen, Godon, Roy, Cunningham, and others call for particular mention. It is in Germany in particular that the hygiene of the teeth has actually found a footing. The statistics of the extent to which caries prevails will be made clear to the vision of beholders.

Those statistics it was that ultimately induced dental surgeons to place the combating of caries on a broad basis. The arrangement of school dental hospitals, the introduction of dental surgery into the army and navy, the winning over of financial authorities to the cause of dental treatment, the provision of expert dental practitioners for hospitals, asylums, prisons, holiday colonies etc.,—that is the special province of the hygiene of the teeth. By means of plans, drawings, reports, and illustrated lectures, visitors to the exhibition will obtain a comprehensive view of what is already being done in this direction in civilized states. Germany has already accomplished fruitful results through the committee for the care of the teeth in schools, under the chairmanship of his Excellency von Möller, retired minister of state. Dental-surgical aid for children attending the elementary public schools has been secured in many towns. School dental hospitals have been provided in Strasburg, Darmstadt, Köln, Berlin, Frankfort-on-Main, Ulm Mülhausen, and many other places.

The "Diseases of the Teeth" department in the Dresden International Exhibition should, in addition to supplying a great number of examples, promote the universal appreciation of dental hygienic aims, and stimulate many to imitate and emulate those examples. Not only will this young plant be shown to visitors to the exhibition, and to the leaders and their followers in other departments, the recognized exponents of general hygiene, but the will and purpose will be expressed to co-operate in the great work, hygiene, the maintenance of the health of the people.

This is also to say, that the hygiene of the teeth will be further demonstrated in other departments: whether in separate pavillions, or in school hygiene, military sanitation or the care of the sick in towns.

N. B.—Application for space in the department "Hygiene of the Teeth" should be made as follows: From Germany, to Dr. Dieck, Berlin W. Lützow Strasse; from abroad, to Direktor Dr. Schaeffer-Stuckert, Frankfort-on-Main, Kettenhofweg, 29.

ILLINOIS STATE DENTAL SOCIETY.

FORTY-SEVENTH ANNUAL MEETING, PEORIA, MAY 9-12, 1911

PROGRAM COMMITTEE ANNOUNCEMENT.

The Program Committee wishes to announce that it has the program well in hand for the annual meeting to be held in Peoria, May 9-12. One of the features of this meeting will be a lecture by Dr. W. A. Evans, Health Commissioner of Chicago. There are now nearly 1,700 members of this Society, and we should, without fail, have 1,700 members present, all occupying front seats to listen to this lecture.

Dr. Evans is one of the most entertaining and instructive speakers in the entire country. His subject will be "The Relation of the Mouth to the Spread of Infection." This one number of the program alone will pay any dentist to make the trip from the remotest part of the State—no member of this Society can afford to miss it.

And there are some other "big things" coming.

Tom Reed gave the definition of an honest politician as "the man who would stay bought." Mark off the time now, for Peoria, May 9-12, and let it stay "marked off," and when the time comes be on hand and get the benefit of this great lecture, certain to be one of the treats of a lifetime. Further announcement will be made in the next issue of The Dental Review.

THE

DENTAL REVIEW.

Vol. XXV. CHICAGO, APRIL, 1911. No. 4

RESULTS OBTAINED IN TWO OTHERWISE HOPELESS SURGICAL CASES THROUGH THE ACTION OF ORTHOPEDIC FORCE UPON CICATRICIAL TISSUE*

BY C. S. CASE, M. D., D. D. S., CHICAGO, ILL.

This paper is presented for the purpose of showing the possibilities of moderate positive force upon extensive and otherwise immovable cicatricial adhesions, which in one case enabled me months after the removal of a considerable portion of the body of the mandible to restore the parts to a comparatively normal position, and insert a practical and useful denture; and in another case of long standing ankylosis to satisfactorily correct a decided malocclusion and facial deformity, and partially restore the movements of mastication.

The first case was that of a woman about forty years of age, who, on August, 12th, 1906, barely escaped with her life from an automobile collision with the cars, which killed a relative by her side. Among other equally severe and extensive injuries she suffered a compound comminuted fracture of the lower jaw, which was broken at points between the first and second molars upon the left side, and between the cuspid and lateral incisor upon the right, with intervening portion broken into several smaller fragments.

Notwithstanding the case was placed in the hands of the most skillful surgeons, it was found ultimately impossible or inadvisable to save the intervening portion; which was probably due to its extensive comminuted condition and the consequent difficulty of retaining the parts in position for a successful union.

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*Read before the Odontological Society of Chicago, Dec. 13, 1910.

The case was ethically placed in my hands about two months after the final comminuted portion of the fragments had been removed. I found the remaining fragments, which contained a second molar upon the left side, and a cuspid, first bicuspid and second molar on the right, drawn far out of their normal positions through the cicatricial contraction of tissue from the extensive wound. The teeth had been wired to the lingual surfaces of the upper teeth, doubtless for the purpose of giving support to the isolated fragments and to prevent them from being drawn further into the mouth, until other means could be provided.

Realizing at once the absolute necessity of preserving the few remaining teeth upon which must depend the immediate and future success of the whole operation, I removed the wires, which were causing considerable inflammation and endangering the vitality of the teeth through the force of the contracting tissues, and allowed the case to rest for about three weeks with such treatment as would tend to restore the parts to a healthy condition.

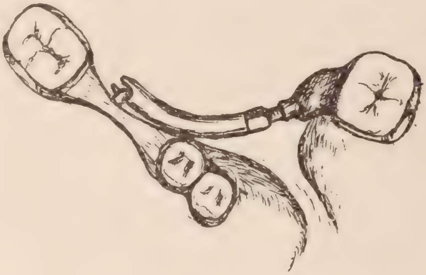

Fig. 1.

The motive apparatus for moving the fragments to place is well shown in Fig. 1. This consisted of a rigid anchorage appliance firmly uniting the three teeth on the right side, which carried a staple attachment for the Arc Jack. To a heavy, wide band around the left molar was soldered a rigid rootwise extension. At the lower border of this was placed an attachment to receive the bar end of the Jack in such position as to exert a bodily force upon the tooth. The point of attachment was also centrally located to avoid a rotating movement. This management of the force through the special construction of the apparatus, I believed to be especially important in preventing the isolated molar from becoming loosened and moving as in orthodontic operations. In addition to the above appliances, I also availed myself of the intermaxillary force, with elastics from upper anchorages to regulate the inequalities of strain in the reciprocal action of the Jack.

In three months' time the teeth were fully in proper occlusal relations, ready for the denture. I was surprised to find that the cicatrix, which seemed equal to bone in its resisting power to immediate movement, yielded so readily to a moderate degree of positive continued force.

The orthopedic movement was attended with no special inconvenience or pain. In fact, soon after the teeth commenced to come into positions of occlusal contact, and she could use them to a moderate extent, as she was directed to do in the mastication of food, their exceeding sensitiveness subsided, the general inflammation of the mouth and salivary glands assumed a more healthy condition; and what was quite as important to the success of the operation, the patient, who is of an exceedingly nervous temperament, arose from a state of utter despondency, which at times contemplated suicide, to a hopeful, confident demeanor.

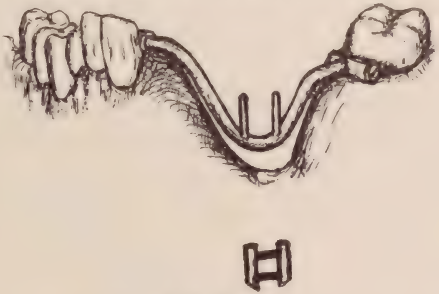

Fig. 2.

The first denture—similar in appearance to that shown in Figs. 2 and 3, was constructed principally to test the practicability of the somewhat complicated device which the case seemed to demand to insure a successful operation of lasting benefit. It will be seen at once that the movements of mastication would render it impossible to attach a rigid immovable denture to the teeth from one fragment to the other. Because when the teeth of one fragment are closed upon hard substances, the forceful tendency of the teeth to come into occlusal contact on the opposite side would either break the attachments of the denture or loosen and destroy the teeth; therefore, it must be one that will permit a hinge movement at the mesial ends of the isolated fragments. Again if both hinges are of the ordinary type, the lateral movements of the jaw would exert sufficient force in the other direction to eventually destroy its hinge attachments—the needful strength of which will be shown later—besides producing a dangerous rotating tendency upon the left molar. Therefore one of the hinge attachments of the denture must be absolutely immovable in a lateral direction, and of sufficient strength and rigidity to carry the other fragment with it in all side movements of the jaw.

Fortunately this was possible, by soldering to the lingual surface of the bridge denture on the right side, a long tube of sufficient size to carry a No. 12 irrido-platinum wire, which when properly bent and hinged to the left molar, would act as a span and base for the denture permitting free movements of the fragments up and down, but with great resistance to lateral force. See Figs. 4 and 5. The tube was opened near its distal ending to facilitate cleansing.

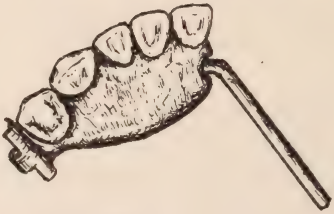

Fig. 3.

The hinge at the left molar was strongly constructed of irrido-platinum and made to receive a downward pressure upon heavy bearings, rather than upon the pin. The pin of the left hinge was threaded at its extreme end to facilitate its removal and that of the partial denture from the mouth at will. Provision was also made for attaching the Arc Jack; this adjunct being indispensable during the construction and fitting of the apparatus and later at times when it was necessary to remove the span denture.

In the construction of the first partial denture, a curved cross bar was soldered to the span to form a foundation for the attachment of the continuous gum teeth and porcelain section. The span shown in Fig. 2 is one that was constructed for the final denture, which will be described later. Before attaching the teeth, however, the patient wore the hinge span until I was assured of its practicability.

In order to fill out the facial lines as much as possible, which at this time were decidedly retruded on account of the loss of a greater portion of the bone which formed the chin, I allowed the porcelain gum to go well down between the fragments and lightly rest upon the intervening cicatricial tissue, hoping also that the irritation and consequent inflammation that would ensue would induce a further proliferation of tissue to aid in building out the chin. In this my anticipations were more than realized, as I was obliged from time to time to grind away the porcelain of this portion even to the extent of cutting half way through the wire span imbedded within it.

This apparatus was worn with increasing comfort and usefulness. The mouth and general system regained perfect health, accompanied by a pleasing restoration of her former bright and happy spirits, and with a promising partial recovery, at least of her usual facial comeliness.

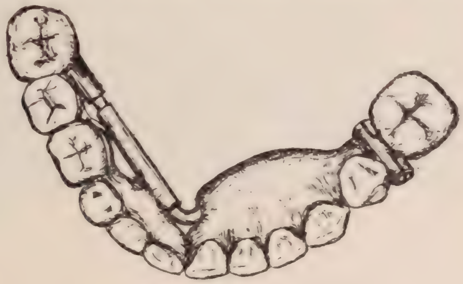

Fig. 4.

A few months after the denture was inserted, however, the hinge bar broke squarely across at the mesial end of its tube attachment, showing the forceful strain that was exerted at this point. An easy removal of the denture with a replacement of the original Arc Jack, for which means had fortunately been provided, permitted the repair without special inconvenience, except the scare and immediate difficulty at the time it broke.

A few months later, in October, while crossing the ocean for a tour of Europe, the bar again broke in the same place. A resort to the Arc Jack held the parts in place until she could get to Paris, where it was most perfectly repaired in the office of Dr. Davenport. While there, the case came under the appreciative observation of Dr. Jenkins, of Dresden, who kindly wrote me a very flattering commendation of the operation.

Several months after her return from abroad the bar again broke in the same place. It was the opinion of Dr. Goslee, who assisted in constructing the porcelain portion of this denture, that the heat of the furnace weakened the strength of the irrido-platinum wire, and that this portion of the denture should be constructed separately with movable attachments to the span bar. I therefore concluded to make an entire new apparatus as there were other parts which I wished also to perfect. In the construction of this I was greatly assisted by Dr. Goslee with his facilities for casting gold and for the required porcelain work. At his suggestion I soldered the upright pins to the irrido-platinum span shown in Fig. 2 and constructed the gate-like appliance seen just below with tube posts to evenly slide down over the pins. Around this gate he cast the base for the porcelain denture which rested upon and accurately fitted the span bar, partially lapping its sides. Upon this base he constructed the partial denture, the baking process of which, and subsequent repairs to the porcelain could now be accomplished free from the span bar.

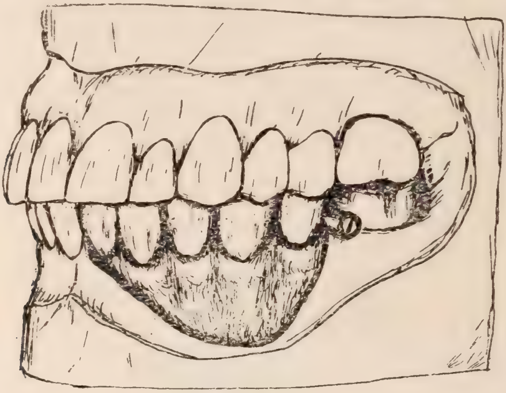

Fig. 5.

This last work was completed in April, 1908, since which time the denture has been worn with pleasurable success. The natural teeth, gums, and organs of the mouth are today in perfect condition, while the entire denture, natural and artificial, possesses a remarkable degree of masticating power. What is of equal satisfaction is the continued general growth and filling in of tissue of a hard cartilaginous quality which seems to be striving to take the place of the lost bone, pushing out the facial outlines to a partial and pleasing development of chin contour. These results I feel sure will be fully confirmed by those of you who improved the opportunity to examine the case at my office today.

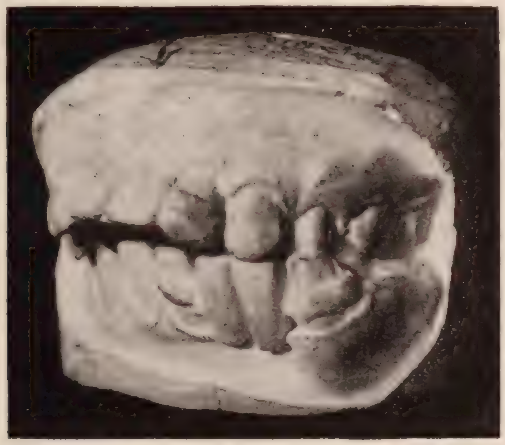

Fig. 6.

The other case of which I shall ask your indulgence is that of a girl residing in Kansas, who was brought to me by her parents in April, 1909, when she was nineteen years of age. At three years of age she was stricken with a severe fever which the doctors called Grippe, that was followed with extensive abscesses over her body. One of these was located at the left temporo-maxillary articulation which resulted in cicatricial ankylosis of the jaw. During the years that followed she was in the hands at various times of the best surgeons they could employ, receiving all the different treatments and operations at their command, with varying degrees of success, but always followed by a return of the ankylosed condition, which forced the teeth nearly into contact, though permitted a very slight movement that would not have been possible with true ankylosis. In some of the earlier operations her mouth was forced open several times under anesthetics. I think it was in these operations that her upper central teeth and a lower central and lateral were broken off.

The most promising operations were performed by Dr. Blair, of Kansas City. In the first one, at about thirteen years of age, he severed the cicatricial adhesions at the joint. This permitted considerable mobility of the jaw for a time, but with every effort that could be employed, it went back to its former ankylosed position inside of one year. At fifteen years of age Dr. Blair removed the condyle, which for about one year allowed the jaw to freely open and close with every prospect of permanency, but later it again gradually returned to its former state.

When she came to me, at nineteen years of age, I found, in addition to the ankylosis, that the jaw on the left side had settled back more than the width of a molar—permitted by the loss of the condyle, which forced the jaw and teeth into a position of decided left lateral malocclusion, and which was further enhanced by an original buccal maleruption of the lower left cuspid. This in connection with the consequent retrusion of the chin, which emphasized an inherent protrusion of the upper teeth, produced an exceedingly unhappy facial deformity. See Fig. 6.

The case seemed such a hopeless one I was loath to take it; and in doing so promised no great success of the operation. I believed, however, that I could improve her appearance and the possibilities of mastication by a gradual opening of the jaws to a sufficient width to regulate her teeth and partially correct the left lateral malposition; and that I could then supply her with an apparatus that she could use, which would insure a continued opening of the mouth, hoping that with that repeated exercise of this movement it would in time establish a false joint that would enable her to more successfully masticate her food.

Fortunately the teeth could be forced apart with levers sufficiently to fit, somewhat imperfectly, two 24-gauge plates, to rest evenly upon the occlusal surfaces of the teeth as far back as the bicuspids. To these were attached buccally upright tubes upon one plate to receive the thrust of nuts upon threaded bars attached to the other. See Fig. 7. It was surprising to see how readily the jaws could be opened a very little at a time by this gradual continued positive force. She soon learned to work the nuts herself with a wrench, and remove and replace the plates. She was directed to wear this apparatus at fullest tension at all times except during eating and necessary talking; but to remove it frequently, and after working the jaws for a time to replace it. Within a few weeks I was able to fit bands and proceed with the regulating, still keeping up the activities of the plates.

During the following year in which the teeth were being regulated the proper application of force for the correction of the ankylosis was exceedingly difficult and painful, and was therefore not carried on, with a test of the principle, as otherwise would have been possible. On account of the changing positions of the teeth it was frequently necessary to reform the plates so as to evenly distribute the force and relieve the most sensitive teeth from painful pressure. Moreover the operation of regulating was one of unusual difficulty that demanded the greatest ingenuity of appliances on account of the small distance the mouth could be voluntarily opened and the extensive movements required for some of the teeth.

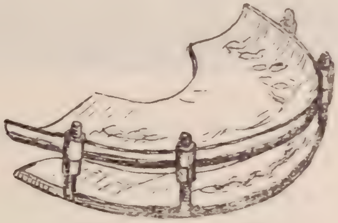

Fig. 7.

In Fig. 6 it will be seen that the upper centrals and lower left central and lateral were artificial teeth held in place by bands around adjoining teeth.

These partial dentures were removed and with the aid of the regulating apparatus in the retrusion of the upper, the two upper lateral incisors were drawn toward each other sufficiently to use their roots for the insertion of two central crowns, that were joined together to retain their positions. See Fig. 8. On the lower the space occupied by the artificial teeth was closed principally by moving the malposed left cuspid mesially. The retruded left side of the jaw was moved forward with strong intermaxillary elastics, which, with the movement of the teeth to the right, partially corrected the occlusion and appearance of the left lateral malposition. When she left Chicago she could voluntarily open the jaws fully an inch in front with every reason to believe that this space would be increased.

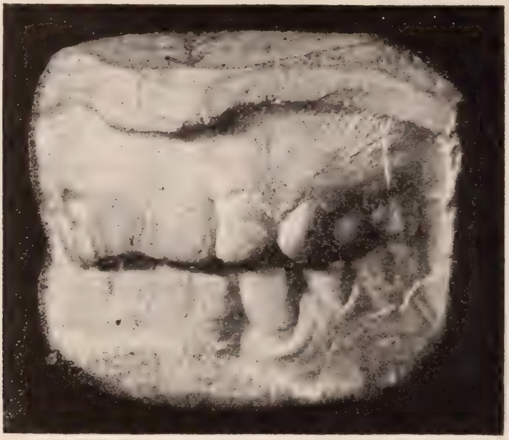

Fig. 8.

It should be remembered that this is not an ordinary case of cicatricial cartilaginous ankylosis of the jaw, as there remains no natural ball and socket joint, the severed end of the neck of the condyle and coronoid process resting, as it doubtless does, in a mass of cicatricial tissue, with a constant tendency to become solidified by the adhesions of proliferating—granulating surfaces. The X-Ray skiagraphs which I here present, were taken at the beginning of the operation with the hope of determining the condition and relation of the parts and the extent of the ankylosed area, but, as you will see, it is only by a high degree of imagination that anything can be discovered by it, and consequently was of no practical value.

What the ultimate result may have been in this case, had the treatment I have outlined been resorted to before the amputation of the condyle, and during the earlier stages of the ankylosis, I leave to be answered by those who have had more experience. I cannot help but believe, however, notwithstanding the fact that general ankylosis of joints, when once started, presents the most unpromising record of true relief, that ankylosis of the temporo maxillary articulation, which is much less liable to an ossification of its joint surfaces, on account of the thickness of the inter articular fibro cartilage, is amenable to successful treatment, because of the favorable opportunity of readily overcoming the adhesions by applying moderate positive force through the medium of the teeth.

PROFESSIONAL BUSINESS.*

BY DR. H. N. PITT, CHICAGO.

Dentistry may be termed a professional business, at least for the purpose of this particular discussion. Profession and business are synonymous in the sense of calling for the purpose of a livelihood.

As a profession dentistry calls for learning and particular skill in its various branches. As a business it calls for attention to detail, with proper adaptation of means to end in view. To give efficient service the dentist should be as free as possible. Every detail that does not require his personal skill, should be attended to by some one else.

The first aim of the dentist is good service, the best in his power, and every time his services are rendered. In modern dentistry, as in surgery, good service is something more than actual service, skillfully rendered. It includes hygienic surroundings, clean and sterilized instruments, clean and sterile napery, efficient assistance, and numerous details beyond the power of the dentist to care for with his other work. These are the things that constitute the business of dentistry.

It is impossible, however, to put a service such as dentistry on a strictly business basis, for there is a necessary freedom connected with good service that cannot commercialized.

This is as it should be, for in a sense dental services are beyond the value of dollars. Ability to give skilfull service is only gained by serving many clients. That means a large amount of detail, and it follows that without a business management of these details skilfull service becomes difficult. It is in the interests of good service, therefore, that a systematic method of caring for the details of the business becomes desirable.

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*Read before the Chicago Dental Society, December, 1910.

The following system was developed in the effort to create better service:

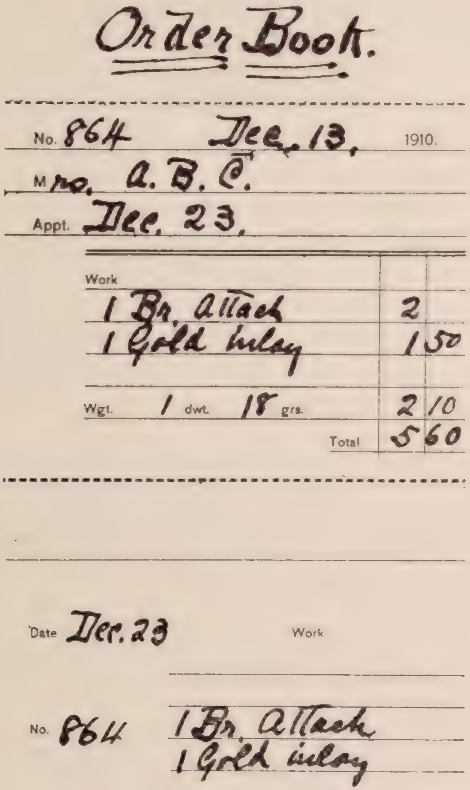
We will begin with the clerical details. This is one of our appointment books. Every dentist has a book for appointments,

	Daily Slip.						
Date & Time.	Name.	Tooth No.	Work.	Dr.		Cr.	
1910 Dec. 13. A.M. 10.03 1910 Dec. 13. A.M. 10.38	Mrs. A.B.C.	12	Prep. Cav. & Imp.				

and with some it is more than that, a day book, a cash book, and even ledger and as such is more or less private and cannot be left about. This book was evolved in order to have not only an office record of the appointments of to-day and the future, but to enable us to carry away a copy of every evening of the following day's appointments. It is composed of a leaf and duplicate for Monday, Tuesday and Wednesday and another for the last three days of the week. These are placed in a cover containing rings which fit the holes in the leaves, and a carbon is placed between them.

Before leaving the office for the day the duplicate day is removed and placed in your pocket. You all know how often it occurs that you would like to know what your appointments are for the next day. And you can, by glancing at the slip, form a definite plan for the day's work. This book is kept in a rack near the telephone and with it the telephone record, which was suggested by Dr. Kells, of New Orleans.

Every call, in or out, is placed on the record. When an appointment is requested it is noted on the phone record and then placed on the appointment book. A change of appointments shows the same way. The initials of the party taking the message follows the record. This enables one to ascertain any apparently missing details concerning the appointment or change. It is also used to automatically remind the assistant to send appointments that are made a month or more ahead.



Order Book.

No. 864 Dec. 13, 1910.

Mrs. A. B. C.

Appt. Dec. 23.

Work		
1 Br. Attach	2	
1 Gold inlay	1	50
Wgt. 1 dwt. 18 grs.	2	10
Total	5	60

Date Dec. 23 Work

No. 864 1 Br. Attach
1 Gold inlay

DAILY TIME SLIP.

In order to facilitate our work and save time for our patients and ourselves we have duplicate operating rooms which we use interchangeably. Immediately on being vacated they are cleared and prepared for occupancy. When a patient appears he is ushered into one of these rooms by an assistant.

As he was seated a slip such as this (showing) was stamped with the day, hour and minute by means of a time stamp controlled by a clock which is convenient to consult from all rooms. On his departure the slip is again stamped. Any memorandum concerning the patient, operation or payment can be placed on this slip. In this way it takes the place of the leaves of the appointment book, which are destroyed, and it carries memorandum which, on account of the public character of the appointment book may not appear there.

It will also show a short-hand record of each case of the day, with the amount collected during the day, the time each patient actually comes, whether by appointment or in an emergency, and the time he is in the chair. You see they carry valuable data from which can be deduced many facts concerning our practice. At the end of the day this time slip, with the survey record slips of the day, are placed together and the dentist can make up his record, being guided by the daily slip.

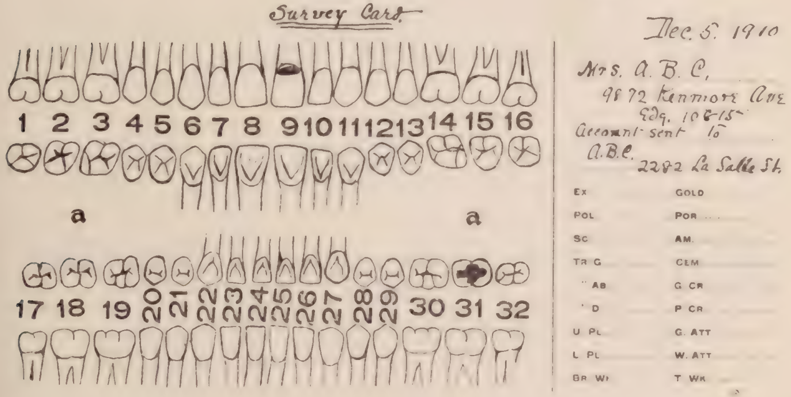
RECORD SURVEY.

We now have the patient prepared for the dentist with his survey record slip placed on a shelf convenient to the chair. If a new patient, the assistant secures his name, address, telephone and references, and writes them on the survey side with a lead pncil, which admits any change in address or even in name. You will notice the large size of the diagram on this slip. It was made large so that a cavity can be distinctly outlined.

On making an examination the cavities are shown in lead pencil. Later when the cavity has been prepared and the record made a true outline is made with ink and colored showing the kind of filling. Any information concerning the patient, as age and necessary history, and the condition of the mouth or the tissues about any tooth or teeth can be noted in the blank space.

Reversing the survey record slip, we find the back ruled for records enough to carry an ordinary case over a number of years. This record is ruled for the date, tooth number, time in the chair, debit and credit, besides the space for the written record. The record of all operations should be made by the dentist himself and should be stated in plain English that anyone may read and understand. Where it is necessary to invoke the law to collect this is essential in proving the account.

These slips are indexed as completed and paid, open accounts, and accounts due. On completion of the case a statement of the account is immediately made ready to be mailed. Bills are sent out every month, and, to avoid haste and confusion in preparing them, they are made during the month and are ready for mailing except for the necessary corrections, such as crediting a payment. For those previously rendered a small form is used which can also be used in giving a receipt.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Survey Card

Dec. 5. 1910

Mrs. A. B. C.,
9872 Kenmore Ave
Edg. 10-15
Account sent to
A.B.C. 2282 La Salle St.

Ex	Gold
Pol	Por
Sc	Am.
Tr G	Cem
" Ab	G Cr
" D	P Cr
U Pl	G. Att
L Pl	W. Att
Br Wk	T Wk

MONTHLY LIST.

To facilitate preparing the monthly bills and stimulate collections a list is made of every account rendered, with name, address and amount due. On payment the account is scratched or the amount is changed to show balance. A glance over this list tells at once what accounts have been paid and reminds one that a certain account, that was promised or expected, is not paid, and also enables you to stir up the slow ones and weed out the undesirables. It tells you how much you are collecting and who has been paying, which is as important as who is not.

APPOINTMENT CARDS.

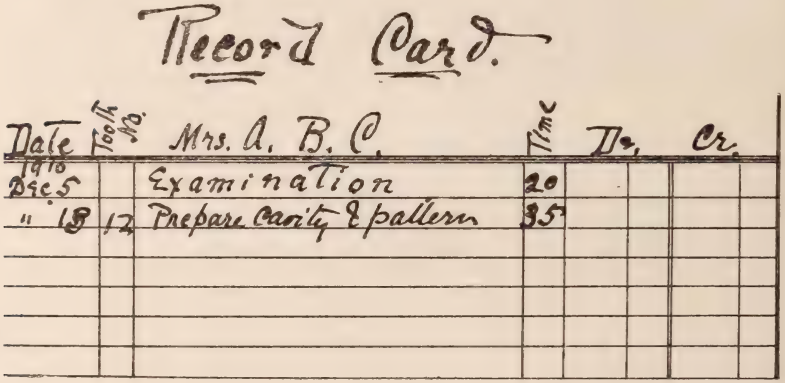
These are small appointment cards and are kept in the appointment book. When an appointment is made you merely fill in the date and hour and it is small enough to be kept in a ladies' pocketbook. We use them in two colors, blue and tan, which tells immediately which one of us the appointment is with.

REMINDER CARDS.

Regarding the use of reminder cards it seems that their use is largely a matter of locality and education. If an appointment is requested for next week, next month or later it is sent out without comment.

OUR LABORATORY.

The development of the casting method, as applied to all kinds of prosthetic work, has, on account of the accuracy and more scientific methods, made it possible to have more of this kind of work done successfully by a capable assistant. The laboratory, therefore, becomes even more essential and important than before though also more burdensome to the dentist who has not enough of this kind of work to keep an assistant busy all the time.



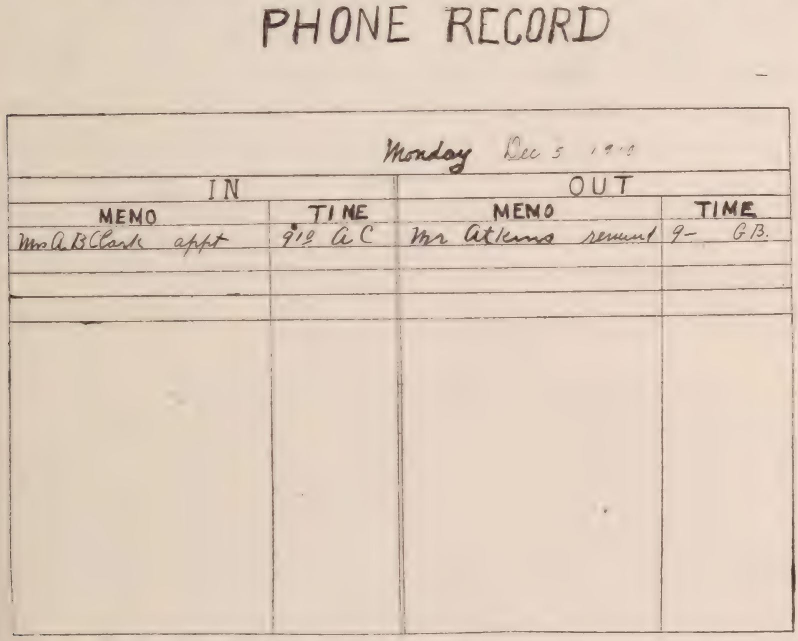
Record Card.

Date	Tooth No.	Mrs. A. B. C.	Time	Dr.		Cr.	
1910 Dec 5		Examination	20				
" 18	12	Prepare Cavity & pattern	35				

A solution of this problem is a co-operative laboratory where two or more dentists can have this work done under their personal supervision. It is reasonable to suppose that one laboratory for two would be much more economical than two separate ones. One assistant, one set of furnishings, rent and light cut in two, and supplies purchased in larger quantities. Our laboratory has been a growth of some years, but when moving last May it had its definite place in the office plan.

A space suitable was set apart for it and it pays rent in proportion to the other space. The laboratory has an account with the dental supply house, which in that way does most of the bookkeeping necessary. All supplies, except precious metals, are charged on this account. Supplies, rent, gas and assistants constitute the expense items. These expenses are paid by the laboratory charging for every piece of work completed and delivered. The prices are based on those in a dental laboratory price list.

A busy laboratory should show a good profit on the year's work. Each dentist supplies his own precious metals, as they are wanted by the assistant in charge, and the filings are carefully saved and become another source of profit and are to be added to the first. These constitute a dividend for those interested and can be divided proportionately. The details necessary to keep track of the work, keep it separate and have it completed in time (the last we found very difficult in the beginning) are really very simple.



PHONE RECORD

Monday Dec 5 1910

IN		OUT	
MEMO	TIME	MEMO	TIME
Mrs A. B. Clark appt	9^{10} A C	Mr Atkins remind	9- G. B.

I will explain by following a piece through the laboratory. When, for instance, a tooth is prepared for an attachment for a bridge the impression or pattern is placed in a box.

The number, name, date, character of the work, and date of next appointment are entered on the upper portion of this page and the number, character of the work, and date to be completed on the lower portion, which is torn off at these dotted lines and placed on the box as a label. This is a page from what we call an order book and is a sort of duplicate order book. For convenience in distinguishing boxes one uses blue and the other black pencil on when it first comes to the laboratory. While under way it is kept these labels. The box is placed on the shelf reserved for the work on the bench or put away on another shelf and when completed is placed on a shelf set apart for such work.

The complete piece is removed from the laboratory, placed in an envelope and with this upper portion of the order book page, which now shows the cost of making, is pinned to the survey slip. Gold pieces are weighed and the weight entered here. To allow for loss we charge the gold at five cents a grain. When making the record this slip is used in fixing the price of the piece.

PRINCIPLES IN SILICATE WORK.

BY C. M. BALDWIN, D. D. S., CHICAGO, ILL.

If amalgam were a new filling material and all the various alloys, from the Mexican dollar to the latest scientific production of amalgam, were used during the first five years, we readily realize what difficulties would arise in attempting to correctly estimate the value of such fillings.

We know how reports would differ and how useless it would be to discuss marginal failures and the various changes noticed, while amalgams were considered as a class without any reference to qualities of the particular material used or technique of the operation. Very generally this has been the condition in the silicate field during the past six years, and accounts for the conflicting reports in this class of fillings.

In a new field of work, materials and technique frequently and

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*Note.—Additional details and contrasts with original method appear on page 302, March, 1910, issue the *Dental Summary,* and page 408 of April number.

sometimes radically change in a short time, and silicate work has been no exception.

It is comparatively easy to look back and see that the inexperience of the entire profession necessarily made it impossible to correctly determine relative values of the various silicate cements, or at once to establish best methods of operating.

We may not realize as yet the full value of the best silicate fillings, but we know that they may be in practically perfect condition after more than five years service.

It is just as necessary for the dentist to intelligently choose materials and know that they are in good condition when used as it is for him to develop skill in using them.

ORIGINAL METHOD DANGEROUS.

A fair trial of this method soon revealed its weakness and dangers, as the almost universal experience was discoloration of fillings, defective margins and chalky or granular surfaces.

These fillings usually appeared beautiful and entirely satisfactory when finished, making it rather difficult to know causes of failures seen a few months later.

REQUIREMENTS FOR SUCCESSFUL WORK.

The greatest need at present is not to have materials improved, but that we have a better understanding of the work, so as to enable each operator to bring average work up reasonably near the best results.

The most successful operators today agree upon requirements and principles involved for producing best work.

PRINCIPLES OF WORK.

The great fundamental principle controlling successful work is, that from purchase of materials to completion of operation, the characteristic qualities of materials be preserved practically uninjured.

All operators must be limited by nature of materials used, but all do not give equally good attention to keeping them in perfect condition. Intelligent care of materials is one of the most necessary features for successful work, as skillful use cannot overcome failures caused by damaged materials.

LIQUID.

The clear liquid, free from cloudiness or precipitate when purchased, removes one of the early handicaps. Some operators used original liquid after too heavy precipitate had formed, which prevented normal chemical action. Properly protected the liquid may be used to about its last fifth, without cloudiness or crystals forming.

These changes will occur when liquid is needlessly exposed to air, or left around mouth of bottle, it transfers effect of air to liquid within, as upon opening it re-enters bottle.

With materials properly protected, the principles controlling the mix, and stickiness of the operation, are of the greatest importance.

PRINCIPLES OF MIXING.

The best mix should develop all the best qualities of the materials and allow the operator to use it skilfully. Three distinct features control the mix.

Moistening powder with the acid begins and completes mix, when all powder particles added are included.

Time consumed and how distributed throughout mix, influences setting.

Air exposure on slab considerably hastens crystalization.

As we understand and apply these principles will we adjust proportions of powder to liquid, affect setting process, density of fillings and value generally. Have separate agate or glass slab for this work, and keep it free from old materials from previous mixes, soot, dust, lint, etc. Use bone or ivory spatula one-quarter inch wide or less, with dull knife edges and slightly pointed. Larger spatulas for this mix are proportionately disadvantageous.

Always place slab in good light. Increasing size of mix retards setting. A decided advantage is gained by using two drops of liquid, or more, if needed, for exceptionally large fillings. Bring powder into liquid as continuously and quickly as it can be moistened. Avoid grinding or spreading mass and loss of time all through process. This manner of mixing permits considerable more powder being used than was posisble when so much time was used to spread and grind, causing mass to set before operation was started. Last powder used should be in small quantities, and always leave mass more moistened than when ready for placing in cavity. In extremely hot weather and excessively dry atmospheric conditions mass should show slight free acid appearance after all powder has been added, but before final mix. If mass is spread out at this time more or less dry particles of powder will be seen. To thoroughly moisten these requires a final kneading for about thirty seconds, and a sufficiently moist mass.

Moistening dissolves more or less of the powder, or is the reverse of crystalization. Avoiding loss of time and spreading mass to thin layer exposed to air minimizes setting, so that the completed mix should be very sticky.

Finally, to prevent unnecessary air exposure, gather mass into cube form without any projecting thin edges, having it stand nearly as high as it is broad on slab. A suitable slice should be cut from one side and packed, and each succeeding piece should be removed from the freshly exposed surface. The opposite side exposed to air since cube was formed will be decidedly crust-like compared with inside remainder of mass, which has not been exposed. The operator should never use the crust portion of mass and ought to mix large enough mass to avoid it. Make a second mix rather than use one that is faulty.

TANTALUM INSTRUMENTS.

The new tantalum instruments provide the much needed, strong, thin blades and small points. A few of these, together with some tortoise shell point instruments, where greater bulk is unobjectionable, makes steel instruments entirely unnecessary.

DRYNESS.

An absolutely indispensable principle for successful work, demands perfect dryness of filling until crystalization has sufficiently developed to protect it.

STICKINESS.

It should be thoroughly understood that the peculiar stickiness of this material was the only reason for introducing the preventive method of operating, viz., vaseline on strips and instruments to prevent adhesion.

Stickiness, then, is the new operative feature and real handicap that must be overcome, to which was added the exclusion of steel instruments to avoid discoloration.

Polished steel instruments, carefully used, have caused much less discoloration than the original oil strip method.

STICKINESS CONTROLLED.

Clean instruments necessarily drag filling when in contact with sticky surface while building piece upon piece. Nothing whatever of any kind is needed or should be put on instruments to prevent adhesion. Just as surgeons use artery forceps and sponges to control their operative field, must we control stickiness, our handicap in operating.

DETAILS OF PACKING.

With a small blade, suitable size pieces are cut from cube mass on slab, placed in cavity and securely fixed by strong adhesion. Meanwhile the packing instruments untouched by sticky material, remain on the table.

While en route from mouth to table, with cambric (no starch) or Red Cross napkin, quickly remove soft, sticky coating from point, thus preparing it for repeated use. Each instrument having any material adhere to it is similarly wiped before exchange of instruments. The wiping, or short dragging stroke, used for all interior packing and building filling, should be with side of instrument on surface of material, and attach marginal portions first. As much as possible it should be a pull towards handle rather than a push towards end of instrument. The pressure is always towards walls or margins, and the shorter the stroke the better, lifting instrument from surface while moving.

Surface packing requires large surface instruments to prevent adhesion and quickly place crystals closely and firmly together. Quickly touching and removing instruments from a rather gummy surface, packs instead of raises surface, provided instrument is not allowed to slip. All wiping, slipping strokes should be carefully avoided, as they drag and cause separation of crystals when too late to perfectly readjust them, causing granular surfaces and defective margins which later become stained.

Begin surface packing at margins, reinforcing adhesion, and density is increased, both at margins and over entire surface. It is desirable to repack or continue packing surface for short time after it has been given fine grain appearance, using judicious pressure to avoid disturbing crystalization. The carrying instrument should remove more or less excess while placing each piece, but all material packed should remain part of filling until hard.

STICKINESS VS. DENSITY.

Instead of density being lessened by increased stickiness of mix the reverse will be found nearer correct. Density and fine grained surface will be improved by increased powder to liquid, and by forming granules into a thoroughly compact mass before gumminess disappears from surface, and maintaining moderate pressure throughout early setting period. Advanced chemical action, while packing, makes heavier pressure necessary and should be avoided.

FINISHING OR GRINDING PROCESS.

Never disturb crystalization when finishing filling. About fifteen minutes after packing, filling should be sufficiently set so that any necessary use of disks, strips or stones will not injure it. Until grinding begins filling remains without coating of any kind, but all disks, strips and stones are lubricated with vaseline, paraffine, cocoa butter or soapstone powder. The dry method increases danger of chipping margins. Carborundum, too coarse grits, stones that pound or have been used on metals will injure fillings. Final polish requires cuttlefish (00), Arkansas stones and celluloid disks for all labial surfaces.

To protect from saliva when rubber is removed, leave same kind of oil on filling that was used when polishing.

Grinding removes hardest section of filling and the polished surface ought to be allowed fifteen or more minutes before removal of rubber.

Thirty minutes protection by rubber and postponing finishing to future sitting requires but very few minutes of operator's time at first sitting in addition to cavity preparation. This gives uninterrupted half hour when operator requires it for other work, affords safety to filling and especially should be adopted when using as best form of temporary work.

Every extra five minutes beyond minimum protection will add to service of filling.

Alcohol, water, saliva, etc., injure filling proportionately as they are in contact with it during setting process.

DISCOLORATIONS.

There are three classes of discolorations:

First—Foreign bodies (dirt, soot, metals, etc.) entering materials while in bottles, on slab, packing or finishing fillings, positively discolor.

Second—Chalky, rough or granular surfaces become stained with food, tobacco and medicines.

Third—Marginal stains may include the other two classes, but leaky fillings or detached margins are the chief causes.

PLAN OF WORK.

1. Patient who appreciates beauty of work.
2. Diagnosis favorable to friable material and protection by rubber.
3. Cavity—general retentive form, with square margins—never beveled.
4. Materials kept in good condition.
5. Instruments—non-metallic or tantalum—suitable sizes and forms.
6. Slab—agate or glass—clean.
7. Spatula—bone ¼ inch wide or less.
8. General cleanliness—preparation entire equipment for use.
9. Operative conditions—1, rubber protection; 2, cavity thoroughly dry; 3, equipment conveniently placed before mixing.
10. Mix—1, materials on slab; 2, bottles closed; 3, mix (a) moisten powder, (b) knead mass, (c) gather into cube form.
11. Packing—1, carrying instrument removes piece from cube; 2, places in cavity; 3, wiped with cambric; 4, packing instruments used and wiped alternately with carrying instrument; 5, surface packing.
12. Crystalization—about fifteen minutes.
13. Grinding—1, sandpaper and cuttle fish disks and strips; 2, corundum, gem, Arkansas stones; 3, celluloid disk—final polish; 4, all lubricated with (a) vaseline, (b) paraffine, (c) soapstone powder.
14. Crystalization—1, minimum fifteen minutes—longer time desirable; 2, thirty minutes in one period when finished next sitting.
15. Protect filling—1, same kind of oil used when grinding; 2, oily coating or good varnish when finish is postponed.

MISCELLANEOUS CONSIDERATIONS.

The high standard of modern dentistry has been achieved only after many years of development.

The individual's success depends upon ability to understand

and apply the knowledge gained. Years of college instruction followed by years of experience usually are necessary to train anyone to become a skillful operator, with materials that have been used, studied and improved by successive generations.

HASTY CONCLUSIONS.

In contrast to such careful preparation for work, many users of silicate cements have taken up this new field of work very much as though it was a "grab bag affair" or get "something for nothing" proposition. Usually inexperience must pay its price, while experience carries a premium, valuable according to who possesses it.

It is a rather common experience to hear densists' opinions based upon their own and other's failures, frequently without knowing which kind had been used, or considering method of insertion or details of operation.

One may classify old fillings, but to determine from appearances only, just which particular kind in its class had been used, is practically impossible.

FAILURES.

As a rule radical failures of gold and amalgam fillings are blamed against the operator.

During the first few years, failures in this new work quite generally were considered due to weakness of materials.

The added experience of recent years indicate most conclusively that the vast majority of radical failures are caused by the operator. The most successful operators have comparatively very few such failures, and consider most of them as avoidable.

Old habits largely control the skillful dentist when attempting new kinds of work.

Necessarily more or less failures follow until he knows the nature of the new materials, and adapts himself to the new conditions. The original method was exceedingly simple, while recently some writers have exaggerated the difficulties, both chemically and operative. Undoubtedly midway between these extreme views is a better appreciation of what is required to be successful in this work.

Those operators who promised "better than gold" without qualifications or other considerations, have had their disappointments when results were unsatisfactory.

The first mistake was poor salesmanship, and the second, they did not deliver the goods as represented. Disappointments are only the differences between expectations and actual rsults.

PERMANENCY VS. ESTHETICS.

For many years in this country we have considered permanency as the test of successful work, but continued use of porcelain crowns, inlays and silicate cements has developed an increasing appreciation and demand for esthetic work.

When permanency is the main consideration, there can be no question or doubt but that metal fillings or inlays should be used. When esthetic features control, or there are reasonable objections to alternate operations, should be the deciding factors for selecting this filling material.

The demand for esthetic work is just as reasonable as for the so-called permanent work.

Permanency, however, should always be a very close second requirement, unless the material is intentionally used for temporary purposes.

Because these fillings are in good condition after five or more years' service, should be sufficient incentive to very earnestly endeavor at least to duplicate such results and make us less satisfied when fillings fail in less time. When fillings fail, try to find the cause, so as to eliminate it from future work.

Corduroy, duck, homespun clothes and cowhide boots may be necessary to resist rough usage, but there are many people who prefer broadcloth, silks, satins and laces, and feel well pleased with the kind of service they give. We should not confuse conditions or requirements.

Misrepresentations intentionally or otherwise cause dissatisfaction, while a perfect understanding avoids it.

ATMOSPHERIC INFLUENCES.

The mass on slab is considerably influenced by varying atmospheric conditions.

The degree of temperature in office, whether natural or artificial, is almost the sole cause. Higher temperatures proportionately hasten setting, while lower degrees retard. Dryness and heat of the tooth also accelerates chemical action. Use every safe means to retard setting while mass is on slab, especially in extremely hot weather. Early morning appointments would give operative advantage.

Remove bottles from sun exposed cabinet. An hour before using place slab and closed bottles on a cold surface, viz.: mosaic floor, marble, or heavy glass top table. Excessively chilled slab might endanger mix in humid atmosphere. Never allow strong current of air from open window or electric fan to pass over slab while mixing. The mix as described retards setting and uses such a large proportion of powder that less may be used when necessary to give sufficient operative time and proper consistency of mass. First, however, adopt all other suitable means.

MARGINS.

Real stickiness is needed to seal margins, avoid chipping while finishing, and is the protection against leaky or discolored margins. Do not detach with later packing or finishng.

It was a very general result with the original method. However, today some very successful operators use the dry celluloid strip method, holding carefully until setting releases it, afterward grinding excess as usual.

NEW MATERIALS.

Frequently new materials have been known to give much better results than the same operator could produce one year later with materials from his cabinet. Old materials, or new liquid with old powder, or vice versa, too frequently mean poor results.

Experience has taught the necessity of removing base metal of die or counter die before soldering gold. It is just as necessary to prevent contamination of these new materials and protect them from weakening influences.

Try opening new bottles of powder and liquid for same mix, and notice improvement. Close bottles, using pressure and twist before returning to cabinet. Improve next month's fillings by caring for materials today. Even in commercial lines, many articles formerly sold in bulk are protected by enclosure in sealed packages. One may have satisfactory service carrying a watch without being a jeweler, and it is just as unnecessary to be a chemist to give these materials the simple protection required.

Early enthusiasm led some to insert the silicates in a very large proportion of all cavities filled, before they had an opportunity to observe results, consequently failures soon discouraged such a practice.

Confidence in porcelain inlay work, while considerably decreased, continues such as it is because with all its difficulties and failures, the operator is using old familiar materials and realizes that operative features need correcting if results are to improve. A feature not to be lightly overlooked, is that physical and nervous strain for both patient and operator is reduced to the minimum by this class of work.

A FEW DETAILS.

Secure ample space for simple proximal cavities. When space gained is less than required with size of instruments to be used, cut piece from gelatine medicine capsule, turn over proximal and labial surfaces of tooth opposite cavity. It saves all space needed for finishing, which is postponed to another sitting. Leave gelatine piece in position when removing rubber, as saliva soon dissolves it.

Never use steel instruments to cut away excess of filling within margins. Clean chisels may be used to chip away thin brittle excess beyond margins. Push instrument through excess and away from margins, but never toward them.

The last chance to protect liquid is when on slab before mixing. Carefully observe glistening surface and remove any small foreign body, viz.: dust, lint, soot or paraffine.

Coat old fillings with vaseline, paraffine or varnishes as indicated, to protect from medicines, or dryness under the rubber.

Veneers mechanically retained in old gold fillings (needing repair), and inlays, combine beauty and strength. Never attempt to fill a comparatively large cavity in contrast with a small opening, just because using a plastic material.

Before placing silicate fillings allow volatile drugs in root fillings and medicated cements to evaporate, then cover with quick setting oxyphosphate.

The free acid causes effervesence on pearl and some forms of onyx, indicating they should not be used as instruments, spatulas or slabs.

DENTISTRY IN ST. LOUIS.*

BY. B. N. PIPPIN, D. M. D., ST. LOUIS, MO.

What is Dentistry? The Standard Dictionary of the English language defines it as "The practice or art of a dentist; operations performed on the teeth; dental surgery." And defines dentist as "One who practices dental surgery, as filling, cleaning, adjusting or extracting teeth and providing artificial dentures; a dental surgeon."

Webster's International Dictionary defines Dentistry as "The art or profession of a dentist; dental surgery;" and defines dentist as "One whose business it is to clean, extract or repair natural teeth and to make and insert artificial ones; a dental surgeon."

There is a striking similarity in the definitions of the term dentistry and dentist as given by the two named authorities and I suppose their correctness is not to be questioned; yet I doubt if these definitions are entirely acceptable by many of the competent dentists who have practiced dentistry for any considerable length of time in St. Louis, for they do not harmonize with the expressions of many such individuals in speaking of these terms. For example, one dentist, whose competency as a practitioner and whose experience and professional standing, would entitle him to the distinction of being considered an authority on any thing dental, speaks very clearly the sentiment regarding dentistry that is often heard expressed by other dentists of equal standing, when he defines dentistry as a vocation which may be considered a profession rather than a trade; or if regarded as a business is certainly a very disappointing one; it might more correctly be classed as an exasperating pastime. He defines dentist as one who is foolish enough to practice dentistry.

Neither are the definitions given by the standard dictionaries wholly acceptable by the laity, if the expressions heard from various sources concerning dentistry and dentists, are to be regarded as having any significance, as these are to the effect that dentistry is a means of torture to human beings for which people pay fabulous sums. A dentist is one who practices dentistry, a torturer and a robber.

***Read before the St. Louis Dental Society, Oct. 11, 1910.**

While I do not believe the majority of the practicing dentists hold the opinion of their profession as has been heretofore expressed, nor that the majority of the people regard dentistry with such horror and the dentist with such contempt as many chance expressions would indicate, it is a deplorable fact, nevertheless, that a great many people do have erroneous ideas, and dentistry is not looked upon by the public with the favor it should be, and the competent, conscientious dentists are not held in due regard. The most deplorable feature is, however, the fact that conditions do exist that give rise to this adverse sentiment. In my opinion, dentistry, as a profession, is not responsible for this state of affairs, neither is the public who should be its beneficiaries; but the blame can be directly charged up to those and only those who practice the profession, the dentists themselves.

First in substantiation of the idea concurred in by many of our very best dentists, that dentistry is a vocation that may be considered a profession rather than a trade; or, if regarded as a business, is certainly a very disappointing one, etc. I wish to give you the following figures obtained through experience, in actual practice in this city. The data is based upon what I believe to be very much above the average fees charged for dental service in St. Louis. I give you the total amount of money charged and collected in twenty-five of the best cases and the total number of hours required to do the work. From this I compute the amount of money received per hour. I also give you the average price per operation, and the average price per hour, for each of six diferent kinds of work, as computed from twenty-five of each of the six kinds of work, and the time required to do the work:

	Fee	Hours	Av. Per Operation	Av. Per Hour
25 Cases—Total collection	$1,405.00	402	....	$3.49
25 Gold Fillings	146.00	38	5.84	3.84
25 Gold Inlays	281.00	66	11.24	4.25
25 Porcelain Inlays	289.00	57	11.56	5.07
25 Amalgam Fillings	66.00	27	2.64	2.48
25 Crowns	374.00	86	14.96	4.35
25 Treatments and Root Canal Fillings	109.00	86	4.36	1.26

In the past year there has been a great deal written on the business side of dentistry, and prominent among those who have written on the subject I wish to mention Dr. Fredrick Crosby

Brush, of New York, whose articles in the August number of *Items of Interest,* entitled, "The Business Side of Dental Practice," appeals most forcibly to my ideas of fairness to all concerned in the practice of dentistry. I shall quote from his article and give you the figures upon which he bases his calculations and the conclusions he derives.

He estimates $5,000.00 as the amount of capital invested in a college education and $1,500.00 invested in office equipment, making a total of $6,500.00, total capital invested. On this he counts interest at 6 per cent, to which a man is entitled. His schedule of estimates, which an average practice should earn, is as follows:

Interest on investment	$ 390.00
Depreciation fund	150.00
Rent, etc	500.00
Salary account	2,000.00
Supplies	250.00
Assistant	300.00
Incidental expenses	300.00
Total	$3,990.00

He then says: "This shows an estimated total expense of about $4,000.00 which the average dental practice must earn and collect before it can be considered a successful business venture. It must yield more than this in order to pay a profit or dividend."

Further on he says, "We find that we have a total expense of $4,000.000 for the year. The questions now that arises are first, How is the expense to be met? and second, Can it be so arranged that each working day will bear its own quota?

"Let us determine how much time will be at the disposal of the operator in which to earn this amount of money. Personally, I have found by experience that it is not good business policy, nor is it necessary, for a dentist to have office hours on Sundays or on holidays. I cannot make that too emphatic.

This eliminates sixty days, that is, there are eight principal holidays, and fifty-two Sundays, making sixty days in all. For one engaged in such a confining and exacting occupation as dentistry, a month's vacation is none too much for rest and recuperation, if one is to maintain a high standard of efficiency. This time can be so divided throughout the year as to best meet the requirements of the individual. That is to say, he can take two weeks off in the summer and two in the winter, or take odd days, or take his vacation at any time that will meet his individual requirements. With this time deducted, there will then be left two hundred and seventy working days in which to earn the $4,000.00. By a simple problem in division it will be found that each day must show a return of $15. That is his expense per working day is $15, for he must earn $4,000.00 in two hundred and seventy days in order not to fall behind. Light and other conditions considered, the working hours of a conscientious dentist will be limited to the hours between 9 A. M. and 5 P. M. Deducting the time lost through interruptions and the changing of patients, there will be but about six hours' actual operating time for each day. Figuring at this rate it will be found that each hour must show a return of at least $2.50 earned, in order to keep even with the expense account. And this is without making any allowance for time lost by broken appointments or emergencies of any kind. You must earn $2.50 every working hour for two hundred and seventy days in orders to earn $4,000.00 each year, which in an average practice only pays the operator a salary of $2,000.00 a year. As such emergencies do arise in every practice a still larger sum must be earned in order to be on the safe side.

If we assume that the estimates made by Dr. Brush, upon which to base his calculations are any ways near correct, and that his conclusion that a fee of $2.50 an hour for six hours a day is a reasonable and just compensation in an average dental practice, I ask you to compare with his data, the data which I have compiled from a schedule of fees which represent those charged by the highest priced dentists in St. Louis, who are supposed to conduct much better practices than the average, from which it is determined that the average hourly income is only $3.50, $1 an hour or $6 a day better than the average practice, assuming that all fees charged are on a par with those from which the calculations are made and that there is no loss of time and no bad accounts.

Now since every conscientious dentist in St. Louis does more or less charity work, and every dentist makes a number of bad accounts, the $3.50 an hour average obtained from fees charged and collected, represents a considerably higher hourly income than is actually being received by our highest priced, so called *"Robber Dentists"* in St. Louis. Consequently the best practices in this city are but little better, if any, than what an average practice must be in order to be self-sustaining, according to the average hourly income of $2.50, as estimated by Dr. Brush.

If a schedule of the best fees as charged in St. Louis only give those dentists who get them and who are endeavoring to do conscientious work, only a little more than is absolutely necessary to maintain their practices and to support themselves and families from day to day—practicing six hours a day, which is enough if the work is faithfully done—what kind of an existence must be that of those competent, conscientious men who are only getting the average St. Louis fees for their services, which average, I dare say, will not exceed $1.50 per hour and it may not exceed $1? Is it any wonder then that so many of our best dentists in this city, who are doing faithful work after years of conscientious practice, are still poor men with little prospects of becoming any richer? Is it any wonder that after years of faithful service so many dentists throw up their hands in despair, as old age begins to creep upon them finding them wholly unprepared for retirement, and too old to enter any other professional field and practically unfitted to do any other kind of work, and in no unmistakable terms proclaim dentistry a very disappointing business and an exasperating pastime.

There are those dentists in St. Louis, however, who have saved for themselves a competency, and I do not wish you to infer that I think these men are necessarily disreputable or that they have conducted their practices along unscrupulous lines, for I know in many instances this is not the case. Then you may ask how are we to account for the fact that a number of competent, connscientious dentists working for St. Louis fees have each saved for themselves a competency for their declining years? The question is easily answered. They work anywhere from eight to sixteen hours a day, six hours for expenses and the overtime for profit. This simply means that if $4,000.00 is an expense to be met each year, requiring $2.50 an hour, six hours a day, for two hundred and seventy days, by beginning work at 8 o'clock in the morning and working until 2 o'clock in the afternoon without lunch, or until 3 with lunch, the six hours for expenses will be utilized, and the time from 2 to 3, as the case may be, until 7 in the afternoon and such additional time as may be put in the evenings will be spent for profit.

Now, while it is every dentist's privilege to work as many hours a day as he chooses and to conduct his practice along whatever lines he may prefer, I question the rationality of any dentist working over six hours each day, even though he confine all his operations to those hours when the light is best, and do only such work as can be done where light is not such an important factor—(during the overtime) on the grounds that he cannot do conscientious work longer than six hours each day without sooner or later endangering his health, and long before his days of usefulness should be passed, he will be rendered incompetent to practice through physical inefficiency. I do not believe that one practicing such an exacting profession as is dentistry should attempt to practice longer than six hours each day, for the maintenance of a high standard of efficiency is but justice to himself, to those dependent upon him and to those whom he serves.

Now, in consideration of the facts that have been cited, and the opinions expressed and the arguments supporting them, are there not just reasons for this discouraged dentist's definition of Dentistry, especially if his definition be understood as applying to Dentistry as practiced in St. Louis?

Second, in substantiation of the assertion that conditions exist —the causes of which are attributable to the dentists themselves—which lead people to regard dentistry with contempt and the dentists with suspicion, I shall enumerate what I consider a few of the causes for this state of affairs.

We have in St. Louis a number of supposedly ethical dentists. courteous in manner, gentlemanly in appearance, all-round good fellows, each with a large practice, who follow a custom of putting on crowns of all descriptions in one-half the time that any competent, conscientious dentist could possibly do such work correctly; of filling at least a dozen cavities with amalgam in one hour's time, necessarily disregarding all modern cavity preparation in every detail; paying no attention to contact points and never, under any circumstances, giving such fillings a final finishing; cleaning teeth for nothing to give good measure on other work; resorting to all known time-saving methods in the treatment of teeth that are found to be in a pathelogical condition, regardless of a lack of scientific principles involved in such methods of treatment; of catering to the patients' wishes rather than to his or her needs, by allowing the patient to dictate what is to be done and how it is to be done; in trying to in some way or some how do something for every one who comes into the office and charging for all operations what are considered the customary fees. The results are, the dentist makes money. Sooner or later the work proves a failure. If the patient returns and makes complaint, a smooth talk induces consent to have some other kind of work to replace that which has failed. A failure results again. The patient, disgusted with dentistry, changes dentists, and if fortunate enough to become a patient of a competent dentist, who is also conscientious, the teeth are carefully and scientifically treated, and restored to a state of comfort and usefulness, requiring on the part of the dentist a great amount of skill and labor and consuming many hours of valuable time. An average fee is charged, which the patient considers exorbitant as compared with the customary fees, which had formerly been paid, and notwithstanding the fact that the teeth are in all probability repaired for life, the patient denounces his real benefactor as a thief and a robber. The supposedly ethical dentist makes money through his methods of practice because he spends a minimum amount of time and collects a modest fee. The real ethical dentist manages to live while he spends the necessary time to do the work correctly, and by collecting an average fee, he is still able to exist to continue his work as a martyr in his beloved profession.

Again, we have the incompetent dentist, who may or may not be conscientious, but in virtue of his incompetency, the effect upon the mind of the public is the same as that as described in the case of the supposedly ethical dentist.

We also have the advertising fakir, whose advertisements clearly portray to all who are educated to interpret them correctly, the fallacy of their assertions and the real intent of those who publish such gross misrepresentations, in the hope of securing patronage. While these imposters no longer flourish in St. Louis as they formerly did, their methods, nevertheless, have exerted an evil influence, which is keenly felt from time to time by all who are trying to conduct ethical practices, for a large percentage of the people regard advertising in dentistry, as in all other occupations, GOOD BUSINESS, and the ethical dentist is necessarily forced into competition with these charlatans whose misdeeds are an abomination to righteousness, a hindrance to civilization and a curse to mankind.

Again, we have a number of good dentists who, through conscientious work and excellency of service, have increased their practices to such proportions that they can no longer render efficient services to all who apply to them for treatment, and to meet the emergency they employ dentists to work in their operating rooms for them. The ability of these hired dentists as operators may, in many instances, be questionable, and even should they be competent, the fact that they are hired on a salary or a commission, or both, does not have the effect to inspire them to render their best services, and the result is that people are humbugged in what they consider the very best offices in the city.

Again, in many offices of our very best dentists, as the dentist begins to grow old and his practice has grown to unmanageable proportions if he continues to attempt to render enduring services, a saystem of puttering, and temporizing is resorted to and these very dentists of rare ability and even national reputations as operators, become expert wadders of plastics, and cement daubers, very much to the disgust of many of those who have been their life long patients.

Now, after a consideration of the methods of practice as have been enumerated, are there not good reasons from the standpoint of the public for an adverse sentiment for dentists and their profession? If these conditions exist I ask you who is responsible for them? If they exist, should they be corrected, and if so, how? I maintain that they do exist and that the dentists themselves are responsible. In my opinion they should be corrected, and I prophesy that the dentists, through higher education and a better understanding of the real province of their profession and a keener appreciation of its responsibilities, will, in the course of time, adopt such methods of practice as will place dentistry upon a plane of professional righteousness where it will be duly appreciated by the public, and its practice by the dentists will indeed be a pleasure.

Now, in conclusion, if I may presume to define dentistry, I should say that it is a profession, the province of which is the scientific treatment of the various affections of the dental organs, and the practical application of correct prosthesis; dental surgery. I should say that a dentist is one who is qualified as a dental surgeon, and who practices dentistry in a scientific and professional manner.

If these definitions are assumed to be correct, then not all those who perfom dental operations are in reality practing dentistry. Neither is every one who has the degree D. D. S. in reality a dentist.

If I may presume to propehsy as to the future, I should say that the time will come when the dentist will stand on a par with other professional men. He will be a scientific man rendering professional services rather than a commercial artisan dispensing dental materials. His office will be conspicuous for its cleanliness and perfection in equipment. His hours will be limited to a number not to exceed six each day, and he will treat as many patients during these hours as is consistent with his knowledge and judgment, without dictation from his patients. He will keep a detailed record of all cases treated, noting the condition from time to time and the result of his treatment. His work will be so systemized that there will be no occasion for loss of time. He will base his fees on the character of the service rendered and the time consumed in rendering it, time being regarded as an important factor. All this will come when time shall mark the passing of the private colleges of dentistry that are conducted for financial gain, being maintained upon the revenue arising from matriculation and tuition fees of students, where a large enrollment and graduation of large numbers each year is essential to the declaring of profitable dividends to the institution's stockholders; where the dollar is more important than education and the division of spoils is preferable to the graduation of competent men.

All this will come when only such dental educational institutions remain that are conducted for the sole purpose of education, and that are abundantly endowed to insure ideal equipment for teaching and the maintenance of a thoroughly competent teaching staff; where the revenues arising from students will be a secondary consideration, and the graduation of only men who are thoroughly competent will be the object to be achieved.

This will come when the authority and duty of state boards,—who hold their responsible positions by virtue of appointment by one who has the authority vested in him through political party domination—to sit as examining bodies to license men to practice will no longer be sanctioned.

This will come when, and not until the dentists themselves become men who will not permit conscience to be smothered by greed for financial gain. And then, and not until then, to the dentist will these choice lines be applicable.

"To rise in the morning with a rested soul; to burn the day's first incense at the altar of one's highest ideals; to begin each day's work with a song whose courage sets other hearts singing; to dignify the prosiest toil by an honest investment of self; to be spendthrift of kindness, frugal of the minutes and niggardly of criticism; to come down to the evening hour with the peace of having blessed the world in spite of failure—this is to be a 'workman that needeth not be ashamed.' "

PROPHYLAXIS.*

BY O. H. MANHARD, D. M. D., ST. LOUIS, MO.

Probably no subject has been of more interest to the dental profession, or received more attention in the past few years, than this one, under the different titles of "Prophylaxis," "Oral Hygiene," or "Preventative Dentistry."

So much has been written and published that I do not expect to present anything that is new or original. The definition of the word Prophylaxis is "preservative or preventative treatment for disease." In dentistry it means obtaining and maintaining a condition as thoroughly hygienic as possible in the oral cavity.

Dr. Frank W. Low, in a paper read before the Northern Ohio Dental Association, states: "That, as maintained by Miller, the cause of all decay of the teeth is the presence upon their surfaces of the bacteria, such as are abundantly present in the human saliva; that the relative immunity of different individuals, depends more upon the factor of the bacteria being fastened upon some given location upon the tooth, than upon the number of bacteria present in any given quantity of saliva; that the potent agents to accomplish this phenomena are the most effective in the following order:

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*Read before the St. Louis Dental Society, November 1, 1910.

"First. The gelatinoid placques, being a substance made under favorable circumstances by the bacteria themselves.

"Second. The glutinoid smears, holding colonies of bacteria, not so firmly attached, but covering larger surfaces; and

"Third. Mucin, the floating flocculent masses found most abundantly in the saliva, which appears in the mouth to be noticeably stringy or ropy. That the most efficient means of overcoming the tendency to decay caused by any of these agents at present known is the so-called prophylaxis treatment."

How many of us see mouths nearly every day in some stage of the conditions described by Dr. Low; the placques adhering to the smooth surfaces of the teeth, or the smears encircling the teeth at the gingiva, or the ropy viscid condition of the saliva. Are we doing all we can to overcome the effects resulting from these conditions, or, are we still cleaning teeth?—spending about fifteen minutes with a brush or rubber cup loaded with pumice, revolved by the engine, polishing only the exposed surfaces, and permitting the most vulnerable points to go untouched. With the knowledge obtainable on this subject, no dentist can be justified in giving his patients anything short of thorough prophylactic treatment, which, to me, means the removal of all irritating causes. The irritating causes may be poorly-fitted bands, bridges of faulty construction, fillings or inlays not properly contoured, fistulae or calculus. While prophylaxis is being specialized, if my interpretation is the accepted one, it cannot be confined to a specialty. Crowns or bridges that are impinging and causing a constant irritation of the gum tissue, must be replaced by ones that are properly constructed. Fillings or inlays not properly contoured, leaving space for the accumulation of food, must be replaced, so as to restore the mesio-distal diameter, and contact points be made to preserve the interproximal space and the tissue therein. Chronic fistulæ must be treated and cured, or the cause thereof removed. This brings us to what is probably generally understood as prophylaxis, the removal of all calculus and thorough polishing of the teeth. This can best be accomplished by the use of small, very sharp instruments made for this special work. The ordinary scalers have no place unless possibly to first remove very heavy deposits of salivary calculus. Go over all surfaces, carefully removing all deposits, not forgetting that the serumal deposits, while most difficult to remove, are the most injurious, and if we expect results, sufficient time must be taken to do this work thoroughly. In the majority of cases, especially new patients, do not expect or try to accomplish this at one sitting—it will frequently require several. The polishing must be done with wood points—preferably orange wood—in a port polisher with flower of pumice mixed with water to a thick paste. I usually put in a couple of drops of peppermint, rendering a cooling, cleansing sensation. As you begin polishing you will probably observe that your point slips over the surface of the tooth as though it was greasy, due to the placques, but it must be continued until you remove this gelatinous accumulation, and get down to clean tooth surface, which is indicated by the frictional sound. After the flat surfaces have been gone over carefully in this way, use Cutter or ribbon silk, charged with pumice, in the interproximal spaces. These general inaccesible surfaces can be thoroughly polished in this way. For a final polishing use pure oxide of tin made into a paste.

Prophylaxis can accomplish very little without the intelligent assistance of the patient, who should be instructed in the proper method of brushing the teeth and gums,—or should I say gums and teeth?—as the brush stroke should be a rolling movement from high on the gums down over the teeth, or up on the lower teeth. In giving instructions to patients one has to be very autocratic, and give them to understand that co-operation is absolutely essential and results can only be obtained by conscientious work on the part of both the patient and dentist. At each visit point out any delinquent spots, and instruct how best to reach them with the brush. Thoroughness is absolutely essential in this work. Without it we cannot accomplish prophylaxis prevention, which, of course, is the condition we are aiming to maintain. Do not imagine the work is easy. It is not. It is arduous, painstaking and exacting, but conscientious effort is amply rewarded by the results obtained, and the gratitude of our patients.

SOME NEEDS AND SUPERFLUITIES IN THE EDUCATION OF THE AVERAGE DENTAL PRACTITIONER.

BY BARNETT MINDLIN.

The subject of dental education has been, and is, perpetually agitating the minds of the foremost men in the profession. And though it has been conceded almost on all sides that inasmuch as dentistry deals with the restoration of function, and calls to its aid medicinal agents, it is a branch of the healing art, yet no definite agreement has been reached amongst authorities as to whether the art and science of dentistry are of equal importance or whether either one of them is more important than the other. The art of dentistry has had, and still has, its warm advocates; so has the science. Others again would like us to be highly skilled artisans, accomplished artists, medical men, men with a liberal education, of high culture and refinement, in a word, men fit to take care of the teeth of angels. The dental journals, the local, state, national and international society meetings, have all been turned from time to time into arenas of debate, upon which the gladiators of the dental profession have entered to engage in fierce contests—each bravely defending his particular creed. Our Blacks and Kirks and Talbots and Darbys have all participated in this struggle. That these men are entitled to a hearing when they speak on the matter of dental education, no one will deny; for these are the giants of the dental profession, nay, the very pillars upon which the dental structure rests. But that a mere student should attempt to criticise the dental curriculum may seem rather presumptuous. And I confess, indeed, that were it not for the fact that in the following remarks I shall voice a large volume of both student and practitioner opinion, I doubt whether I would commit myself on paper on this subject of dental education—no matter how much my feelings for certain needs, and against certain superfluities, should clamor for expression.

In considering the chief sources of dental education, we find them to be the dental schools, the dental journals, and the dental society meetings.

With the dental society meetings, in so far as those in charge of them provide the members with interesting table and chair clinics; and in so far as valuable essays are read and intelligently discussed in order to elucidate the truth—and not, in the words of "Brother Bill," "just to hear one's own sweet voice"—in so far no one can find fault with them. On the contrary, they are highly desirable, since they serve as a sort of clearing house where different ideas are exchanged, where superiority of thought and method is challenged and defended, and thus a good opportunity given to judge of the merits of fads and innovations. Dental society meetings are also highly desirable because they are instrumental in bringing together a group of people who have a common interest. They give an opportunity to greet a fellow practitioner with a hearty handshake; they serve to impress upon the mind that in dentistry, as everywhere else, the most essential thing is solidarity; that "united we stand, divided we fall." And indeed were society meetings productive of no other good than the cultivation and fostering of this fraternal spirit, their existence would be highly justified, for this spirit is in truth the highest sort of education.

That the dental journal plays an important part in the education of the dentist is self-evident. The giant strides which are being made in all branches of dentistry make it incumbent upon the progressive dentist to keep in touch with periodic literature. Dentistry changes its front constantly. Old doctrines are being daily exploded and new ones substituted. And it is through periodic literature that a dentist will find what his fellow practitioners are doing here and abroad, so as to be able to avail himself of their superior methods and benefit by their observations and experiences. Indeed, no dentist who cares to do justice to himself and his patients can afford not to read at least a few dental journals, and select discriminatingly the valuable gems contained in some of them.

And now I come to the third, and fundamental, source of dental education—the dental college. It is here that my student mind sees palpable needs. The greatest of these is more practical experience. The utter helplessness of recent graduates when confronted by cases a little out of the ordinary is simply appalling. Not that an extended experience in school would enable one to meet all possible cases; but it would certainly give one a much better opportunity of correlating them, and also of attaining greater efficiency in operating. In the two dozen or more of dental school catalogues, which I have examined in preparing this paper, I have found, with the exception of two, that students are not made to work in the clinic during the freshman year. Now, I, for one, do not see why the admittance of students to work in the clinic should be postponed till the junior or senior year. I admit that a certain amount of operative and prosthetic technique is necessary in order to be able to do the work in the mouth, and in the prosthetic laboratory, more or less intelligently. I also admit that a certain number of didactic lectures on prosthetic and operative dentistry, as well as on dental anatomy, are helpful in the prosecution of practical work. But I strongly believe that far too much time is spent on these things; that far too much stress is laid on lecture work in a field where not telling, but showing, how to do things should be the dominating factor. One semester is quite enough for these preliminaries, and at the beginning of the second semester of the freshman year, work in the clinic should be started. This waste of time has been skilfully characterized by Dr. F. B. Spooner, of Brooklyn, New York, in one of his articles in the *Summary* for 1909, on "Dentistry in 1958." He says there that when he was shown through the college of the future, he noticed that there was less labor to force the student on theory, but an effort was made to give practical clinical instruction. Lectures were going on all the time, with work in the laboratories and operating room; it being held that the real student could get his theory from books. He attended lectures as he saw fit, but could give four-fifths of his time to practice and one-fifth to lectures. As in the army, he says, it is well to teach the soldier to mend his clothes and keep his boots polished, but the main desideratum is that he learn to shoot straight, not the way his uniform is knit or the chemical formula for blacking.

Further on Dr. Spooner complains that in his time almost the whole of the freshman year was spent in learning how to scale teeth. In later years, his teacher told him how hard he was put to it when appointed, saying to the head professor that he could teach the students scaling teeth in one lesson. "Sir," said the old hand, "I could spend the whole morning telling them how to whittle a stick. Lecture on why orange wood is better than lemon wood to carry the pumice. Spend a week on the constituents of salivary calculus, and how it differs in men and monkeys. Tell how a cuspid is called a canine, as it does not resemble a dog. I have some sharks' jaws in the cabinet. You can take a month contrasting them with human teeth, animal teeth, and why hens don't have teeth. Pumice will take two months; how it grows, where it comes from, and what mountain throws out the best product. Why, man, you have a year's material in hand!"

The only valid objections to the freshman's starting in the clinic at the beginning of the second semester of the freshman year, that I can see, are the lack of equipment on the part of the schools, and the lack of clinical material. Now, as to the equipment, it should be the business of each school to try to equip itself so as to be able to accommodate on the floor of the clinic the students of all three classes—or else perish in the attempt. And as to the clinical material, that does not depend so much upon the location of the school as upon the students themselves. Given four or five patients, the student should be able to establish right in school a sort of miniature practice, and not have to waste time waiting for patients. But the question of the student's ability to obtain patients brings me to another great need in the dental school and that is, the establishment of a chair on "How to Obtain and Keep a Profitable Practice."

We all know how the business side of dentistry is of late gaining prominence in our society meetings and in our literature. This is a natural result of the fact that, in spite of the tremendous advances that modern dentistry has made, the material well-being of the dentist has been sadly neglected. Statistics show that the average life of the dentist is shorter than that of any other professional man. Considering what a confining, eye-straining, nerve-racking and lung-cramming profession dentistry is, it is small wonder indeed. We are told that a great majority of dentists die poor. We see by the journals that, at a recent meeting of the New Jersey State Dental Society, a resolution was passed to raise a fund for indigent dentists; and the hope was entertained that similar action would be taken by other societies. Clearly something must be wrong somewhere. Don't dentists contribute enough towards the health and comfort of humanity? Why, then, such poor returns? Why should any dentist broken down with age and hard work, become an object of charity? It is to solve this problem that I suggest a chair on "How to Obtain and Keep a Profitable

Practice"—with particular emphasis on the "Profitable." With an experienced man in this chair, himself a success in his chosen life work, a student of human nature and a gentleman—and such are surely to be found amongst dentists—the obtaining and keeping of a profitable practice can be reduced almost to a science.

This would help to improve not only the material condition of the graduate, but also his morals. For, were students not let loose upon the world with absolutely no knowledge as to how to get the first monthly payment of their mortgaged furniture, we would hear less of that blot on the dental escutcheon, the advertising dentist, in whose production the schools are undoubtedly passive accomplices. Instead of that the student is advised by men who have passed through the struggle with long hours and low fees, "to spiritualize his existence and work for the love of humanity"—an ideal with which he sets out (in spite of what Dr. Kirk may say to the contrary), but which soon lands him in bankruptcy; and in desperation he either quits entirely, or decides to get remunerative work by any means at all.

Another need in dental education is the teaching of humanitarian dentistry. Students are expected to do heroic cutting without giving due regard to the feelings of patients. And whilst this may be all right in school, where patients think they get something for nothing, yet when in private practice the recent graduate soon finds out that patients will not stand for it. He is at a loss what to do, and begins to sacrifice mechanical perfection to expediency, thus laying very often a stepping stone to ultimate degeneracy.

It is said by some one that when Dr. Black was asked what to do with sensitive dentin, he replied, "Use sharp burs." Now, this may be all right for Dr. Black, whose personality is enough to hold patients in dumb submission; but the average practitioner needs every possible help to reduce pain—the greatest bugaboo of the dental profession. So that a discussion of the advantages and disadvantages of all the means at our command,—be it cataphoresis, high pressure syringe, nitrous oxide, cocain, novocain, phenol, blue light anesthesia, mental suggestion, or what not—all these ought to be brought to the notice of the student that he may see what use he can make of them.

Yet another need in dental education—and this applies to our whole educational system—is less deference to authority. The exploitation of individual methods, rather than the laying down of broad fundamental principles, and the forcing of blind acceptance in any school, is a deplorable thing, indeed. It stifles all independent thinking, crushes all initiative.

It is self-evident that every great authority, no matter how highly he is worshipped, may be wrong somewhere. Since no man was ever yet wholly right, either in fundamentals or minor points, a reasonable amount of freedom of initiative and comparison would be less productive of filling students' heads with one-man ideas, and of depriving them of the desirable quality of discrimination.

So much for some of the needs. And now as to some superfluities.

Of these the greatest is that of the M. D. degree, or even most of the knowledge which this degree is supposd to carry with it. The so-called fundamental sciences have been introduced into the dental curriculum with the inception of modern dentistry; and have been gaining larger and larger scope ever since. In this we acquiesce (though it still remains for teachers to explain whether the "20 points of interest on the petrous portion of the temporal bone," the tendon of Achilles, or Peyer's patches, and the like, have more to do with the building of gold angles, hunting for mesial canals in lower molars, and removing enamel from under the free margins of the gums, than Greek archeology has to do with the work of an Hibernian laborer.) But gradually these fundamentals, these so-called medical subjects, have begun to infringe upon the distinctly dental branches. The consequent impression gained by the graduate from this procedure has been skilfully characterized by Dr. J. D. Patterson, of Kansas City, Missouri, in the *Summary* of 1906. He says:

"On his shelves he has put drugs galore, which assume to cure where only mechanics will. He tells you that degenerative oral conditions are due to obscure climatic, constitutional, consanguineous, cabalistic, conglomerate, or convivial causes, and will prescribe in dog, or pseudo-latin, tonics, cathartics, alteratives, eliminatives, sedatives, with a freedom to appall those who have a legal right to do so; and in so doing he prides himself that he is acquiring the right to demand both social standing and professional recognition."

But of late this tendency has assumed greater proportions still—evidently for the express purpose of gaining esteem in the eyes of the medical profession and the public—and has culminated in the advocacy, by many enthusiasts, of the medical degree for dentists, as though we are not getting all the medical education we can reasonably expect to make use of.

At the head of these enthusiasts stands no less a personage than Dr. Eugene S. Talbot, of Chicago. He has come out from time to time with virulent articles, which have called forth replies from another star in the dental profession, Dr. Kirk, of Philadelphia. But whilst I am aware of the fact that Dr. Kirk has ably taken care of Dr. Talbot, and that I myself am dwarfed into insignificance at the mere mention of Dr. Talbot, yet, in my humble way, I would say that judging by his fire-spitting style, he presents to me all the characteristics of a pipe-fiend in his ecstacy. On this subject of an M. D. degree for dentists, he is wholly unapproachable. It seems that his enthusiasm has absolutely outstripped his reason. This idea has, indeed, passed with him into a sort of belief, which is like an armor plate, against which the shafts of reason beat in vain; or like a shield which effectually insulates him from all approaches of sanity.

Yet another hot-headed advocate of the medical degree for dentists is Dr. D. D. Smith, of Philadelphia, who has gained renown by his "prophylaxis" and ultimate desire for the annihilation of dentistry as it exists today. This man has called forth a reply from Dr. Sage, of Cincinnati, Ohio. His reply is so pointed that I am tempted to quote him. "There has been," he says, "and is still, no end of empty vaporing about raising the standard of dental education, a straining to make dentists conform to the double standard of dentistry and medicine. The real question is not what would we have, but what can we have. It is to be deplored that dentists know little about diagnosis, medicaments, and all that. But in deploring that, we must not lose sight of the fact that the very features that these would-be reformers decry, are the features which make dentistry worth while in the esteem of the public, to-wit, mechanical offices particularly. The public does not want to see dentistry absorbed in medicine. The patrons of the profession want fillings, plates, bridges, inlays, orthodontia. Not even the leaders of the profession are, or can ever become, the arbiters of its destiny. If the matter were referred to the popular verdict it would be found to be, "Give us dentists, good dentists, plenty of them. If it is likely to impair mechanical dentistry to teach dental students medicine, don't do it! We can find our own physicians."

It has been pointed out, time and again, that with all his imperfections, the dentist is far better fitted for his work after he leaves school than the physician, who tries to cover so many "ologies" in one additional year, endeavoring to know something of everything, and never everything of something. If a little knowledge was ever dangerous, it certainly is with our medical brethren. Hence the right to issue death certificates, which accompanies the M. D. degree, is a very valuable adjunct, indeed, as has been keenly remarked by Dr. Kirk.

And now that I am speaking of medical men, let me interject this thought, though it might not be quite germane to the subject. If I had the power, I would remove every teacher who is an M. D. only from dental faculties. Think what a loss it is to the dental profession to have teachers in our colleges who have no interest either in dentists or dentistry. After all it is to the men who teach that we rightly look up as the leaders of our profession. It is they who are expected to do our research work, fill our journals, represent us in literary and scientific circles, and animate all our society meetings with their presence. There are surely to be found men among dentists able to teach the so-called fundamental sciences; and if there are none, then let there be a demand for them and it will soon enough be supplied.

Another superfluity in the education of the average practitioner is a course of academic studies. Just as the clamoring for medical education has resulted in the passing of a law in the state of Virginia, in which dentists are classed as medical specialists, and which requires them, beginning with 1914, to pass a medical examination before obtaining the dental license, so has the clamoring for higher education resulted in the passage of laws in some other states, requiring of every prospective dentist to have a year or more of academic studies. And whilst it must be admitted that any manner of education or knowledge has intrinsic value, yet, when looking at it from a utilitarian point of view, this academic course is superfluous. Common sense and an understanding of human nature will go a long way towards the making of a successful dentist; and these qualities are just as often to be found outside the walls of our high institutions of learning as inside. No higher education, any more than M. D. degrees, can be immediately utilized by the average dentist, either to his own or to his patient's benefit. And as far as mere accomplishments go, they are too expensive luxuries to indulge in, both in time and money. We do not live in the age of Methuselah, nor do the coffers of the average student overflow with money; for if they did, he would probably think twice before taking up dentistry. Nor is there any requirement by the majority of people for highly educated dentists. They could not very well require something which they themselves do not possess. As Dr. Black, in his "Limitations of Dental Education," in the DENTAL REVIEW, for July, 1907, puts it: "In the professions it seems useless to place the minimum degree of education higher than the intelligence of the people as a whole will support by a sentiment that will cause a sufficient number of young men to enter into the work."

The demand by authorities for ever-increasing education has resulted in a decrease of 2,242 students within the last seven years, as is shown by the report of the Commissioner of Education. The difference between 1905 and 1909 alone is fully 1,000. And this in spite of the fact that 97 percent of the people of the United States have faulty oral conditions, that about 10 per cent only receive dental care and treatment other than extraction; and that only half of this 10 per cent receive adequate service!

Yet another baneful result of this higher education propaganda is that it drives so many graduates to our big cities. They are so confoundedly educated that nothing less than city life, with its allurements and laboratories, will do for them. It is here that they expect to establish high-class practices in course of time. Hence the overcrowding of dentists in big cities, whilst the small towns and villages are sadly in need of their services.

And all this for what? Not because there is a real need for it, but because, as is openly admitted by the advocates of higher education, the dental degree does not carry with it sufficient professional dignity and social standing. Or because it happened that some fortunate individuals have established practices which they thought paid them for undergoing any amount of trouble in order to become dentists. Here, for instance, is an extract from a paper in the

Cosmos by a dentist named W. L. Ellerbeck, of Salt Lake City, Utah, who talks of the philosophy of dentistry, of higher education, and the rest. "I believe," he says, "that the average dentist will make more money and will live a longer and more useful life by practicing from *ten to three* continuously, and devoting the remaining part of the day to healthful recreative pursuits, as baths, massage, golf, tennis, driving, etc., than to put in the laborious hours so many do."

Evidently this gentleman and his like know little, and care less, about the *raison d'etre* of the fifty to seventy-five cents amalgam and five-dollar crown man, with his nine, ten and twelve hours work a day, with Sundays and holidays to boot; or else they would bend their energies toward mending real instead of imaginary evils.

No one, indeed, wants to see dentistry go back twenty-five years, when there were only two years of college of four months each, with little or no preliminary education; much less is there a desire to go back seventy-five years, when the barber and blacksmith wielded the turnkey. No. What is needed is a relaxation of effort on the part of enthusiasts, and on the part of all those in whose power it is to shape the destinies of dental education. Let there be no attempt at embellishments and imitations, with mere vanity as the impelling motive. Let there be no attempt to set out a great variety of forced and sickly plants that wither away and die, but rather a few seeds that will take deep root and grow. Let there rather be a bending of energies towards bettering the conditions of those who have chosen dentistry as their life work, and who are relieving humanity of so much of its suffering.

Indeed, the further development and growth of dentistry at present consists not so much in higher professional attainments as in the gaining of publicity for the benefits to be derived from it.

American dentistry is not in danger of losing its enviable reputation. Let us uphold its traditions. In harmony with the law of evolution, it is bound to progress. And just as the brilliant achievements of the past thrill our souls "like the strains of martial music," so will the achievements of our own time thrill the souls of generations to come.

A FEW THIRD BICUSPIDS.*

BY CHARLES J. LONG, D. D. S., DENTAL SURGEON U. S. ARMY,
FORT ANDREWS, MASS.

Several articles recently, in the *Dental Digest,* concerning third bicuspids, having come to the notice of the writer, the following exceptional case of this character may be of interest.

Patient, male, unusually large frame and powerful jaws, age thirty, reported for dental treatment September 1, 1910. Dental caries, disto-occlusal cavity, lower right second molar. Odontalgia absent.

On the lower right side, in perfect alignment, posterior to cuspid, were three well developed bicuspids, the first molar was missing, the second in place and well developed, the third missing.

On lower left side, in same sequence as those on right side, were also three perfectly developed bicuspids, the posterior one, however, was forced into the arch about half its width, lingo-buccally, the first molar was missing, the second malformed, and only the cusps erupted, and the third only partially erupted.

Patient's history of case would indicate that lower first permanent molars had erupted, but had been extracted, space remaining on right side would seem to confirm this data.

The upper denture contained full compliment of teeth with no irregularities. A model of the above case is now preserved in the G. V. Black Club's cabinet of curios, St. Paul, Minn.

SOME PRACTICAL POINTS.*

BY W. G. BURKHARDT, D. D. S., CHICAGO, ILL.

CASTING GOLD INLAYS FROM CEMENT MODELS.

Prepare cavity, beveling all margins, even gingival.

Take impression of cavity with perfection modeling compound, using Dr. Roach's impression cups shaped to take margins accurately, also a bite to be mounted on articulator. Imbed impression tray in plaster, and when set mix Ames, technic cement, working it well into the corners of impression, as advocated by Dr. Wassall. Remove cement model with hot water and make up wax model of inlay hollowing it with a suction carver, to reduce contraction of gold in casting as much as possible. Remove all beads of gold after casting and try on model, burnishing all margins and finishing filling to a complete polish while on the cement model.

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*Read before the Lincoln Park Branch of the Chicago Dental Society, January, 1911.

ADVANTAGES.

First. Minimum amount of time for patient in the chair. Second. Ease of working out of the mouth. Third. Control of excessive contraction, especially at the gingival margins. Fourth. Complete finishing of filling on model, keeping margins perfect.

DOUBLE DOWEL FOR BICUSPIDS AND MOLARS.

Iridio-platinum wire No. 17 bent into a very narrow staple and to the top of staples solder No. 12 iridio-platinum wire with platinum and gold solder. Adjust staple to root, a dowel for each root canal, and the upper portion to detached post or Davis porcelain crown, filling in with inlay wax, chill it thoroughly and remove from root.

After removing crown invest and cast, using pure gold, insuring an absolutely perfect adaptation to root and canals.

FASTENING LOOSE TEETH.*

BY A. SWIERCZEK, D. D. S., CHICAGO, ILL.

The device for fastening loose teeth, of which I am going to speak to you tonight, has been used by me successfully for some time; although the simplicity of the device justifies the presumption that it is more in general practice than I suspect. However, I will describe a case where three lower incisors were encased by this method about six months ago and are today as intact and serviceable as any sound tooth.

Of course, I need not add that that the advantage in mastication is not alone to be considered, for the loose teeth are held better in position by this device for the scaling and regular treatment used in Pyorrhea cases.

The construction of the device is as follows:

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*Read before the Lincoln Park Branch of the Chicago Dental Society, January, 1911.

A strip of 24 karat gold plate 36-gauge, about 2 m m wide and of little more than sufficient length to surround the tooth, is placed around the tooth so that the upper rim of band is even with the occlusal surface. With a pair of pliers the two ends are taken labially and drawn tightly together, after removing and annealing place back, and, while holding band in position with left hand, burnish the lingual and proximal surfaces of gold onto the tooth, thus getting perfect adaptation, release pliers, remove band and solder with 22 karat solder, the applied borax will keep the two ends together while band is being held in flame on lingual side with tweezers. Now cut away labial protrusion, burnish again onto tooth and one band is ready. After repeating this process on as many teeth as necessary take an impression with soft plaster, but care must be taken not to let plaster overreach the bands; after setting remove plaster, which will come readily, and with bands in situ on impression, fill out to obtain model. Add a pinch of tenax to plaster to prevent cracking of model while soldering bands together proximally with 20 karat solder. If rigidity is required let solder flow over lingual surface of bands to desired strength. Polish and cement in place.

If patient objects to the presence of gold bands labially, cut away labial part of gold band after cementing, so that the bands overreach the proximal sides about 1 m m and the device will look like gold fillings in each tooth.

CASTING APPLIED TO THE CONSTRUCTION OF DAVIS CROWNS.*

BY T. L. LARSENEUR, D. D. S., CHICAGO, ILL.

It is not my intention to give a long paper on the subject, as the time is limited; I will, therefore, limit this expose to the technique of construction and the many advantages this method has over the old way.

The crown, having been selected in the usual manner, the root is then prepared in the following way: The root should be cut labially from 1-32 to 1-16 of an inch above the gingival line at an angle of about 45 degrees. For this purpose a suitable root-facer may be used, small carborundum stones may also be found serviceable. The lingual portion of the root should also be cut about 1-32 of an inch below the gingival line. When a band is not used it is unnecessary to remove the enamel, as the adaptation which is secured gives a perfect relation between the root and the wax.

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*Read before the Lincoln Park Branch of the Chicago Dental Society, January, 1911.

The crown is now fitted to the root by the use of stones, and one should grind it so as to obtain an approximately close fit on the labial side, so that when the crown is completed no gold can be seen at the gingival line. The lingual side of the crown should be ground so as to have a space of at least 1-16 of an inch between the crown and the root. The palato-lingual surface of the crown should be ground towards the root, this will prevent the crown from rotating on the gold base.

The next step is to adjust the dowel, which, in this case, should always be of iridio-platinum wire, and preferably the kind manufactured especially for the Davis crown. When the adaptation between the dowel root and the crown is satisfactory, the next move is to prepare the crown for the impression which consists in washing it with alcohol and afterwards coating the surface where the impression is to be taken, with vaseline. The dowel is then placed in position in the crown; the wax softened to proper consistency is now placed in position on the crown. While the wax is still soft the crown is pressed firmly into place on the root; this should be allowed to set for a few moments. In order to hasten the hardening of the wax a spray of cold water may be used. While the crown is still in position the overlapping edges of the wax should be cut away with a sharp instrument, this will facilitate the removal of the crown and impression and lessen the danger of distortion.

After removal from the root the crown should be chilled in cold water and all surplus of wax should be trimmed off so that the impression will be clear and having no overlapping edges. Should the impression be imperfect, dry the wax thoroughly, heat it up and proceed as above described till satisfactory results are obtained. If you want a good fit you have to have a good impression.

Before the crown is removed from the impression the sprue wire should be attached to the wax at the point where it is the thickest, usually at the lingual portion. When the sprue is firmly set the crown should again be tried in so as to make sure that nothing has been disturbed during this last operation.

The crown, with the impression, should now be removed from the root, then the crown should be removed carefully from the wax without disturbing the position of the dowel and the sprue. Wash well with alcohol to remove vaseline and saliva, invest in the usual manner, heat and burn the wax and finally cast with gold.

After cleaning this cast base should first be cemented to the crown with thin cement and allow to thoroughly set after which it may be polished and finally cemented to the root.

The results obtained by this method will surprise you, you will have a crown with a cement line barely perceptible and nothing to irritate the surrounding tissues. The strength of your crown will be much greater since the fit to the root is perfect, as the condition of relation between the different parts is the same as that of gold inlays.

STRIVE TO ACCUMULATE A COMPETENCE.*

BY CARL KLEIN, JR., D. D. S., CHICAGO, ILL.

One of the Old Guard of our profession, when ready to retire, said, "In my days I have made a lot of money, but have just frittered it away." This seems to have been a very common failing among many of our predecessors, and we should profit by their experience. I believe this can be done by devoting more attention to the systematic management of our offices and greater care in the investing of surplus funds, and this is probably our greatest shortcoming. We fail in this because of our lack of training for it, also on account of the difficulty of investing small amounts safely and to good purpose, and further because of the large number of able and persistent salesmen of hot air, blue sky and gold bricks. We are taught dentistry in all its branches, but rarely do we learn even the rudiments of business, much less finance, so why not consult your banker, he being trained for just that? When ill you consult your physician; when in a legal tangle, your attorney; for spiritual help, your minister, and when tooth trouble comes you call on the dentist; so why not the man who is trained in matters financial.

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*Read before the Lincoln Park Branch of the Chicago Dental Society, January, 1911.

In the last few years the investing of small amounts has been made more safe and less difficult because the bond dealers have noted the need for and have issued bonds in sums of even $50.00 and $100.00, instead of as heretofore in denominations of $1,000.00 to $10,000.00 One can even buy a safe bond on the installment plan by paying about twenty-two dollars a month, which, with interest accumulation, will amount to the snug sum of $10,000.00 in twenty years. One can carry even a $1,000.00 bond in this way which would call for payments of about $25.00 annually, $2.20 a month. This plan of saving works very well for some folks, as it requires regular and definite payments. and that seems to be the only way these folks can save, or as one man said, "I found the only way I could save was to get in debt, and then scrape to pay it off."

We are generally beset and often pestered to distraction by the kindly disposed gentlemen who are only too anxious to take us by the hand and lead us over the road to fortune, a road out of which all the stumbling blocks have been removed, and which has been turned into a smooth macadamized lane. They want to sell us for trifling sums shares in propositions running all the way from gold and silver to graphite and even mica mines, besides many impossible business schemes. According to all these well disposed gentlemen, there is absolutely no excuse for the presence of poverty in this country of ours. Just turn your money over to them, and after having done this, give instructions to an architect to draw plans for your palatial residence, being sure to include specifications for a large enough garage to house that 90 horsepower gasoline car, besides the electric town-car, which you will have to acquire in order to keep up appearances as a wealthy man. Well, just remember, the really good things are not peddled from door to door, but gobbled up and locked in the safe probably before we ever hear of them. So deal only with men who stand as high in their profession as you do in your own, and not with the quacks or pirates.

In closing, let me offer one of James Patten's rules when buying for investment. "Never buy what you cannot sell to any man at any time."

DR. WILLIAM HARVEY KENNICOTT.

BY FRANK DU SOUCHET.

Chicago's first newspaper, the *Chicago Democrat*, was started November 26th, 1833. A bound volume of its first issues is preserved in the library of the Chicago Historical Society. Under date of May 25th, 1834, appears the following notice:

DENTISTRY.

Dr. William H. Kennicott, Surgeon Dentist, respectfully informs the citizens of Chicago that he will practice the above profession in this place some four or five weeks, inserting from a single one, to an entire set of human or animal teeth in the most scientific and skilful manner. Caries removed, and teeth properly cleansed and filled with gold and silver foil. Ladies waited on at their residence. Families that are residents of this place can engage dental services by the year. All operations performed with as little pain as possible, and charges moderate. (May 25th, 1834. Office at the Eagle Tavern.)

Through the above notice we are introduced to the second dentist to settle at Chicago.

At this time it will be seen Dr. Kennicott had no expectation of doing a settled practice at Chicago, but the young town was having a genuine boom, and the one hundred and fifty or two hundred population of the year before was rapidly growing into the sixteen hundred or two thousand it became before the close of 1834.

This was too good a prospect to turn away from and leave in the hands of the one who had only preceded him by a few months. When he had reached this conclusion he published in the *Chicago Democrat* this additional notice:

DR. WILLIAM H. KENNICOTT.

Surgeon Dentist, returns his sincere thanks to the citizens of Chicago for their attention and liberal patronage since his arrival in this place.

He regrets that previous arrangement obliges him to be absent for a short time, but intends returning in the course of a few weeks, finally to locate himself, when his usual attention will be continued, and hopes to merit that support which he has already so heartily received.

Having for several years confined himself exclusively to dentistry, and practiced in most of the southern and western cities, giving universal satisfaction, he flatters himself that he is more competent than those who only make it a branch of their profession. July 10th, 1834.

References—Andreas History of Chicago, Moses and Kirklands History of Chicago, The Prairie Farmer, a volume of family data owned by Mrs. J. Asa Kennicott, Letters from James and Mark Kennicott, Etc.

When the writer had finally succeeded in locating the family of Dr. Kennicott, the oldest son James replied to his letter in part as follows: "On receipt of your letter I wrote to my mother, who is eighty-five years old, to find out from her the date when father opened an office for the practice of dentistry at Chicago. It seems he went to New Orleans and took a medical and dental course in the early thirties. I remember hearing him tell about it when I was a boy. I do not remember who he studied medicine with, but he took a course with a New Orleans medical and dental college, and came to Chicago between the years 1833 and 1836. Later he opened an office on the corner of Clark and Lake streets, over what was then Wheeler's tin store, where he practiced until his dath. On July 5th, 1838, he married Caroline Chapman, of Troy, N. Y., and erected our home on two lots he had purchased at the corner of Madison and La Salle. In those days when I was a boy the Court House and old log jail with a four-board fence around the entire square where we boys used to play was only a block from our house. Lake street had a plank road, and if a wagon got off the planks in the spring time it went down to the hubs and was stuck in the mud."

It became a custom with the doctor to take his family to his farm at The Grove for the summer, where he spent Sundays with them, bringing them back to town for the winter. When his boys, James and Mark, were old enough to be of service on the farm, and, as Mark writes, mainly on his account, the doctor took up a settled residence at The Grove. From the year 1856 the Chicago city directory gives his residence variously as Northfield, West Northfield, Kennicott's Grove, The Grove, etc.

There are three or four partnerships recorded in the doctor's practice. In 1842, with a Dr. Bradley; and in 1846-7 with his brother J. Asa; and another with Dr. E. A. Bogue, who later made a name for himself at New York and Paris. During the last years of his practice, 1858 to 1862, he was associated with Dr. John White and in 1860 Ransome Kennicott, a pupil in their office, and a son of his brother Hiram, was given an interest with them in their practice.

In addition to his dental practice he found time for work of public character.

In 1844 Dr. Kennicott was elected first vice-president of the Mechanics Institute, and re-elected in 1858. In 1848 he was appointed by the Institute one of a committee of three to devise plans for getting pure water from the lake. At his death, which occurred at his farm October 9th, 1862, as a result of apoplexy and a blood clot on the brain, his wife and seven children survived him, four boys and three girls. Two daughters, Fannie and Grace, have since passed away. The oldest son, James H., is a graduate of the dental department of the University of Michigan, class of 1879. He is located in the practice of his profession at Snohomish, Wash. The second son, Mark, has continued to be a farmer and is a fruit grower in the San Joaquin Valley, at Turlock, Cal. His mother, now in her eighty-sixth year, and sister Kate reside with him. The third son, Paul, is a stock raiser at Wood Lake, Neb., while the fourth son, Guy W., is a physician and surgeon in the state of Washington.

Inquiry has been made as to how William H. came to go so far from home as New Orleans to study dentistry and medicine. Having grown to manhood in Central New York it would have been an easy matter for a bright young man to find a dental preceptor among the practitioners of Albany, Syracuse or Buffalo. As this is a question likely to occur to many, and not likely to be ever answered unless looked up in connection with this present work, the writer has devoted much time to the solution of this inquiry. With the search came interesting family history, some of which is necessary to a perfect understanding.

William H. was a son of Jonathan Kennicott, who was born in Warren, R. I., April 27th, 1775. Jonathan married in Rhode Island, Jane McMillan, who was born January 23rd, 1781. Shortly after their marriage they moved to the state of New York. He was a pioneer all his life, with his face ever to the west. His first settlement in New York state was in Rensselaer county, next in Montgomery county, then in Onondaga county, thence to Cataraugus, and finally in 1832 to Cook county, Illinois. At Albion, Cherry Valley, Cataraugus county, N. Y., February 7th, 1808, William Harvey Kennicott was born.

When Jonathan Kennicott came down into Egypt, like Jacob of old, he was accompanied, not by the twelve patriarchs, but by a family of twelve of his sons and daughters, all of whom later became fruitful vines, save two of the four daughters, who never left the parental roof. The respective ages of the eight sons who came with him were at that time: Levy 28, James 27, William H. 24, Hiram 22, Joseph 18, George 11, J. Asa 8, and J. Alonzo 6 years. In the three-quarters of a century that has passed since then no name has contributed more to the growth, progress and well being of the community than that of this family of Kennicotts. His settlement was about eighteen miles from the village of Chicago, where he and four, possibly five, sons each took up a half section of government land. He gave their settlement the name of "The Grove," by which name it has since been known. Later he and some of his sons went up to the head waters of the Desplaines river, where he built a flour mill at an old beaver dam and established a trading post at what has since come to be known as Half Day. Here some of their children still reside. Some of the land entered at the Grove in 1832 is still owned by Kennicotts, who continue to make it their home. Investigation has shown that when Jonathan Kennicott emigrated to Illinois in 1832 he had another and older son, John A., who did not accompany him. Ten years before the removal of the family from their old home at Albion, N. Y., or about 1823, John A. had gone to Buffalo, where he studied medicine and at the medical college at Fairfield, Herkimer county, where he graduated. After practicing a short time in Canada he started out on a tour of investigation. One of the characteristics of the Kennicotts was their love of flowers, and to horticulture and the subject of botany John had given much time and study, and on which subjects he had written and given lectures before leaving Buffalo. About 1828 he visited Detroit, Sandusky, Columbus, Cincinnati, Louisville and Natchez, spending a little time at each place botanizing, etc. He practiced medicine and lectured one summer near Jackson, Miss., and from there went to New Orleans. There he remained teaching, writing and lecturing until March, 1836, when he removed to Illinois. While he was at New Orleans he was six years principal of the upper primary school, Old Fauxbourg, St. Mary's, New Orleans. Here he started what was said to have been the first literary, scientific and religious paper ever printed at New Orleans, the *Louisiana Recorder;* his brother James became connected with him in it. John A. left the paper to take charge of a male orphan asylum about a year before his removal to Illinois. The paper suspended. Having ascertained these facts the answer to the question as to how William H. came to go to New Orleans to study dentistry was clear enough. Dr. John A. had been living at New Orleans since 1829. In 1832, when the family was settled in Illinois, James and William H. proceeded to join John A. at New Orleans, James to take an interest with him in his paper, and William H. to study medicine and dentistry. The following year, 1833, W. H. devoted to professional study at New Orleans.

In 1834 on his return to Illinois, and on his arrival at Chicago, it is not improbable that the circumstance of finding Dr. Peter Temple practicing both medicine and dentistry may have suggested advantage in confining his own practice to dentistry alone.

Of the brothers of W. H., the oldest, John A., was doubtless the most talented. He was born in Montgomery county, N. Y., January 5th, 1802. He was an enthusiast on the subjects of botany and horticulture and began to lecture on these subjects in his twenty-first year. In 1836 he removed from New Orleans to Illinois and settled with his father and brothers at The Grove, where he continued to reside, practice medicine and write for the press, finally bcoming horticultural editor of the *Prairie Farmer* for a number of years. He died at The Grove, June 4th, 1863.

A few words concerning Robert, the second son of John A., may be of interest. He was born at New Orleans in 1835. In boyhood he evinced decided genius for natural science, in which his father encouraged and assisted him. As he grew up his exploring expeditions took wider and wider range. His favorite idea was to build up a museum of natural history in Chicago. He became one of the early members of the academy. By the time he was twenty-four he had traveled largely over the entire Northwest, and had done a great work in arranging and classifying its natural history.

In 1859, under the direction of the Smithsonian Institute he led an exploring expedition into British and Russian North America. The field of his exploration reached from Hudson Bay to Behrings Strait, and occupied him three years. In 1862 he returned richly laden with specimens in all departments of natural history. These belonged to the Smithsonian Institute, but there had been an understanding that a full series of the specimens should be given to any society or institution Mr. Kennicott might name which would suitably provide and care for them. He designated the Chicago Academy of Sciences, and under the impulse given by this valuable donation the Academy was reorganized and a new charter granted by the state. Professor Agassiz was present at some of the meetings of the Academy and testified to the great value of Mr. Kennicott's labors. Mr. Kennicott was appointed first director of the museum, and the specimens were arranged by him in the rooms of the Academy in the Metropolitan building, corner Randolph and La Salle.

In March of 1865 Mr. Kennicott, with a party of naturalists undertook an expedition to Alaska under the auspices of the Western Union Telegraph Company, to survey a route for a telegraph line to connect North America with Russia. Mr. Kennicott died from a sudden attack of illness on the banks of the Yukon river, and was buried in the depths of that remote region.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held December 20, 1910, with the President, Dr. Frank H. Zinn, in the chair.

Dr. H. N. Pitt read a paper entitled "Some of the Business Side of the Profession."

MR. H. W. TOLLES, of the Sheldon School, by invitation, spoke on the "Psychology of the Business Side of Dentistry."

Mr. Tolles said: Mr. President, Ladies and Gentlemen: I can hardly tell you how much I appreciate the honor of being present and of having listened to the paper which has been read this evening. I certainly have been very much interested in the detailed observations which are conducted in your offices. I believe, however, there are many dentists present who could not give quite such a good accounting of the details of their business as has been done by Dr. Pitt.

With reference to the psychology of the business side of dentistry, this brings me to the topic proper of the evening, and I need not tell you professional men that the subject of psychology has driven many a fellow away from the mighty truth, and this is a very important topic especially in the business world. Had they called it the study of the mind and its operations, they would have gotten at the truth, and I believe the business world would have been as far in advance of the times as we are today, and when you come to the question, pure and simple, the psychology of the business side of dentistry, it is nothing more than a study of the mind or the meeting of minds, and when you come to that topic you have nothing more than simply salesmanship, and I believe that every man is a salesman. From the time Adam stepped out of the Garden of Eden to the present time there has never a commodity changed hands, there is never a whispered note or a wink of the eye but what the element of salesmanship entered, the meeting of minds, and the persuading of people to do that which you wish them to do, and fine salesmanship is the power to persuade people to purchase your product at a profit, and every man is a customer. The minister has as his patron or customer the congregation; the doctor has as his customer the patient; the dentist has as his customer the patient, and the business man, the salesman, has as his customer man generally, who is in one sense a patient. I often think sometimes if I had known quite as much about salesmanship as I know now, and I do not know but very little about it now, I could have shortened the courtship days of Tolles. It took me, gentlemen, ten years to land my prospect. At the end of ten years I landed the young lady, and I have been happy ever since; we could have been happier if we had started a little sooner.

I want to talk to you as business men and as tradesmen. I want you to forget the ethics in one sense, and really ethics is nothing more than right conduct between men. I want you to forget the professional side, that is, the mechanical side, and I want to talk to you just the same as I would talk to an audience of printers, to an audience of manufacturers, to an audience of traveling salesmen, and I want you to draw your own conclusions to see where you fit in in the operation.

The fundamental principle that holds mankind together is confidence. Confidence is the basis of trade, and that must underlie every detail. Had I the time this evening I should go into the subject of how confidence is established outside your offices, and I would like to take up in detail the question of proper publicity, the question of correspondence, the question of proper use of the telephone, the sending out of accurate and neat bills, the question of personality or the conduct of personality of the man outside his office, and also the question of establishing confidence through collections. Sometimes that is difficult to do, and yet if tactfully done you can make a booster instead of a knocker of the man whom you forced to settle.

The business world can be divided into two branches. We can represent it by dividing a circle into two hemispheres. One is the producing side and the other is the distributing side. In one sense the dentist is a manufacturer and a distributer at the same time. I wish to call your attention to three circles. (Illustrating on blackboard.) This is the outer circle which we call business building, and we define business building as the power to make permanent and profitable patrons. If I might make one suggestion in this splendid paper just presented, I would call your attention to the fact that it is not only the time the patient is in the chair that he should pay for, but it it the time between engagements; or, in other words, if a man is going to make his business profitable, he has to start at twelve o'clock noon, if that is when you begin your day, and end at 11:60 at noon the next day; or, in other words, there should be no gaps. In conducting a class of competitive printers in Philadelphia it seemed almost impossible for them to think of such a thing, but when we organized the class it set them to thinking about it. Those printers found out that when they charged for a piece of printing they usually charged for the raw material, the time of composition, what they thought was an appropriate sum for other expenses. They did not consider the floor space or the proportion of the floor space they used. They did not figure the question of light and heat. They did not consider a number of other details. Salesmanship or business-building is the power to make permanent and profitable patrons. When you make a permanent patron, and make that patron a profitable one, then you have an asset, something on which to trade. This inner circle we shall define as salesmanship, and that is the power to persuade people to purchase at a profit. We could put it this way: the power to persuade people to purchase product at a profit. In conducting a class in Philadelphia of insurance men, I made the statement that we could add another pea to the pod, so as to read: the power to persuade plenty of people to purchase at a profit; and it was suggested that another pea be added, so as to read: the power to persuade plenty of people pleasurably to purchase product at a profit. A member of the class said he could add another pea to the pod: it is the power to persuade plenty of people to pleasurably purchase policies at a profit. (Laughter.) Down in Joplin, Missouri, I told this story to a group of dynamite men, and one fellow said: "It is the power to persuade plenty of people to pleasurably purchase powder at a profit"; and then another fellow added one more pea, and said, "It is the power to persuade plenty of people to pleasurably purchase Prudential policies." But it makes no difference what your business is, if you are making a living and you are building a business, you have got to persuade somebody to purchase that which you have to sell, and you have got to have a pod. No transaction is a good one unless it is mutually advantageous to two people, buyer and seller, and they must each have a mutual profit. The laborer is worthy of his hire. Dr. Pitt aptly brought out in the preliminary part of his paper the thought of service, and what is service? Service is defined as the power to serve to the end of satisfaction and profit to both buyer and seller. You will notice two peas in these various pods, and they are absolutely necessary if you are going to have good use of them. One is the thought of power. In business-building we call this the power to make permanent and profitable patrons; in salesmanship it is the power to persuade people to purchase your product; in service, the power of service. That leads me to the question of, Whence comes this power? Many of the salesmen who travel on the road, many of the old seasoned fellows, are born. A dentist who has the power to persuade people to come to him to have dental work done, may have it born in him. Mr. Sheldon, the author of this science of business-building of which I am speaking, has aptly called our attention to the fact that the salesman and every salesman is born, and is naturally born. There is only one kind of salesman that is not born, and that is the wooden Indian out in front of the cigar store. So we have no quibble on that subject. The important thought is though that every man has something to sell, be it tangible or intangible, and that his success or ability or failure depends upon his ability to persuade people to do as he thinks. That is power. Emerson gives us a most beautiful definition. He says: "Self-knowledge, self-reverence, and self-control, these three alone lead to sovereign power." In other words, if you would have sovereign or kingly power, three things you must have: first, self-knowledge, and the man that knows himself knows the other fellow. Second, he should have self-reverence; the fellow that reverences and respects himself will respect the other fellow. "To thine own self be true and it shall follow as the night the day; thou canst not then be false to any man." Self-knowledge, self-reverence and self-control—these three things lead to sovereign power. The man who knows how to control himself, will know how to control the other fellow.

Another thought, and that is the idea of profit right straight through, and what is profit? Profit is the difference between the total selling price and the total expense, and the important thing is to include everything in it, and there is where many institutions have failed because they did not include every one of the details. Let this (indicating) represent a business institution. I want to put this on a pyramid, and see on what it rests. I said a little while ago that the basic principle in all business dealings is confidence. Therefore, we are going to lay a little stone under here and in this pyramid of trade represent confidence. How do we beget confidence if it is not through personality? What do we mean by personality? Good looks and good clothes? Not necessarily. Sometimes they help, sometimes they hinder. It is very important that the dentist should be well groomed and well dressed. He should look prosperous, but there is something more than that in personality. By personality I mean that which bespeaks truth in a man's voice, which shows sincerity in his eye, that which in every word and deed of the man is calculated to establish just one thing, and that is confidence. Remember that every act that you perform, every word that you speak, and I believe thoroughly every thought you think, either adds or subtracts from the total confidence that the public has in you and your service. Let me repeat it: every act that you perform at the office and out of it; every word that you speak in the office and out of it; every thought that you think either adds to or subtracts from the confidence that the public has in your institution, and your institution is a professional institution. Let us, then, analyze personality. What is it? Well, in the first place, each personality has a body and it has a mind. I am not going to take up or discuss the third one of the trinity of which you are familiar—that is, body, mind and soul. The soul does not concern us so much in our talk tonight. With reference to the body, you were very fortunate in having had Dr. Fletcher speak to you as an organization. That man has performed a wonderful service to mankind. The idea for which he stands is growing, and it is a thought over which many men have gone to their ruin. I thoroughly believe that many people are digging their graves with their teeth. They do not know how to eat, and a great many have not good teeth to eat with in the first place.

First, in the matter of the body. We receive food of two kinds, one through the nose and the other through the mouth. Therefore, it is important that we should know how to breathe, and lots of people breathe backward. You watch a baby, and when it inhales air it throws itself out and away down, breathing deep, and yet you will notice that the average person breathes backwards and usually in the upper register. Then the question comes of what to eat, and it seems to me very, very strange that we intelligent people should be so lacking in intelligence with regard to the question of how we select our own food. It is a law that we cannot put two incompatible objects together and let them lie down, as the lion and the lamb, the cat and the dog, and yet we put these things which do not agree into the mouth at some meal and wonder why it is we go belching through life. What to eat, what not to eat, and then the question how to exercise, how to breathe, how to relax. The man who has these physical graces will develop; he will create an amount of endurance, an amount of ability to get into the game, and stay in the game as a healthy animal. If we are going to be a success in the business world, be it professional success or business success, we have got to have good endurance; the ability to get into the game and stay there as healthy animals.

Now, let us look at the psychological side, the mental side, if you please. There are three divisions of the mind, as you all know—the intellect, where the thinking takes place. Mr. Sheldon says there are some people who think; there are others who think they think, and others who just think they think they think. And what do we do when we think? Every idea that comes into your mind has come through the five physical senses. You hear it, you see it, you smell it, you taste it, or you touch it, and Andrew Carnegie, with all his wealth, has no more senses than you and I have. The only difference between that man and ourselves is that he has heard, seen, touched, tasted, and smelled more than you and I have. That is all. And he has applied really what he has heard, seen, smelled, touched, and tasted. Therefore, the first thing is observation, and that is a great asset to the dentist. The next is concentration, the ability to hold one's mind like a sunglass focuses the sun on one point. I have been in dentists' chairs when I have heard everything discussed from Dan to Beersheba, and everything said and done to consume time when I was in a hurry. There are some very talkative dentists, but they are not quite so bad as the average barber. But to know how to handle tactfully a person in a conversation and to impress that personality which will inspire confidence is an art that can be cultivated.

The next thing is memory. I saw in the railroad reports from Washington that there were 1,339 lives lost in three months' time in one summer. We say it is appalling that so many lives are lost. Well, some one forgot to send a message, or forgot to pull a switch, forgot to do this or that, and consequently these lives were hurled into eternity. We see how it was, but that does not compare with millions that are lost in the business world because of one thing, "I forgot." An appointment was not kept. I forgot. Well, then we have to excuse you. It is an excuse but not a reason. Every time a man forgets he violates a principle and subtracts just that much from his success.

Judgment. Mr. Sheldon said not long ago, that if you will give me a man who has perfect judgment, or as near perfect judgment as man can have, I care not whether he has hands or legs, I will send my automobile for him in the morning and bring him to my office and pass judgment on him, and send him home at night, and if he has good judgment he can name any salary he wants, and I will make him earn it. The difference between the gradation of men is very largely a matter of judgment.

Imagination, and what has imagination to do with commercialism? I maintain it has a lot to do. The past tense of the mind is memory, and the present tense is thinking. The future tense is imagination. People construct new images and new ideas into thought. Mind is one of the greatest areas, and the difference between an artist and an imitator is largely a matter of image making or imagination. The artist works on a model slab, moulds and alters it until he sees a beautiful woman, while you and I look at it and think it is only an old slab. He yanks off a few chunks here and some little chunks there until he gets it down finer, and then comes the polishing work, and he actually produces something. And as it stands there you and I see almost life in it, that all it needs is breath. We see what a wonderful thing it is after he has sent it to some place else. That man put his imagination into operation. It is extremely important that our intellect should be trained to imagine new ways of doing things, new ways of presenting propositions, and so forth. The man who does these things is a man of ability.

The next are the sensibilities, and there comes in a feeling of loyalty, honesty and ambition, and many other things. I can prove to you that two and two make four through a process of thinking, but I cannot prove to you that my mother loves me except through my feelings. There is a vast difference between those two. Let us take the one thought of honesty. There is a great deal of dishonesty in business today, but this I know also, and as I am traveling from city to city I am impressed with this one thing, that there is a higher standard of honor and of honesty the country over. It seems to me you can see it almost mark time as it progresses. (Applause.) The man who has this feeling is the man of reliability. The greatest ability in this world is reliability. Dr. Gunsaulus in addressing students on salesmanship and business-building made this statement, that sheer ability is inability. You say, give me a man of endurance and a man of ability, and I will give you success. But is it true? I maintain not. The penitentiary is full of men who have ability and who have endurance. We want more than sheer ability in their qualifications; we want reliability. We want a fellow that is dependable. But that is not enough. I can show you upon the streets of Chicago men who have endurance, who have ability, who have reliability, and there is nothing doing. They are walking the streets. They have their wishbone where their backbone ought to be. They are wishing for success, and out of the large number of dentists you have in this city you will find some of those who have this same trouble, and that is, they lack the third division of the mind, and that is where decision, perseverance, and activity take place; or, in other words, it is the man who has will power, and the man who has will power has action. I challenge any of you to show me a man who has endurance sufficient for his work, a man who has ability sufficient for his work, a man who has reliability sufficient for his work, a man who has action sufficient for his work without finding a man who is a success in that work. In other words, you add ability plus reliability, plus endurance, plus action together, and you have area. The mental area of any man is simply a question of how far he develops his latent faculties and qualities, and every normal-minded man has some fifty-two of these and not fifty-seven varieties. You will find some thirty-six of them which is the mental yardstick by which you can measure any man. There are some people built on this plan. I will take this pod. Ability, reliability, endurance, action spells area. There are some men who make the area large. There are those who make it small, and then there are the fellows who continue to be the wee-wee little fellows. If a man has all of these four things he may be considered successful. Let us take any man we may know, but let us take one whom we all know—Roosevelt. He is certainly a man of ability. The only thing I would offer against him is the matter of judgment, and that is a relative matter. He may be right, and the other fellow wrong. But his enemies give him credit for reliability. When he went to Harvard University he lacked endurance, but he got busy and developed his endurance, and he has never been heard of from the standpoint of lack of action. Again, he has been a traveler. He is a man of large area. This man is a success. And what is the difference between men? Not the difference that they lack any of these qualities because God has not robbed any one of them if he has a normal mind. The only difference between the strong and the weak man intellectually is that the former has developed his capacity to a larger degree than the other.

Mr. Sheldon once told me, for the first time, how he came to know a great truth. He said with tears in his eye, "Mr. Tolles, it was the happiest moment of my life when I realized that every fellow had the same thing that I had. And then," he said, "my ambition sprang within me to give men encouragement and help them to find the way for developing themselves to a greater extent."

There is no such thing as a perfect square gentleman. There is no such thing as a perfect man. I believe in the perfectability and not the perfection of man. It is true, a chain is no stronger than its weakest link, and man is no stronger than his weakest part. If in this address tonight I should say one thing that you know is not true, you will judge the whole address by that one thing. If I should write you a kindly letter and misspell one word, you will judge the whole letter by that word. Your friends know you not by your success as much as they do when they have seen you stumble and fall. Therefore, it behooves you as men to do a little introspection, and this time of the year is a mighty good time to do it, to find out where we stand between perfect endurance and absolute lack of endurance, and how far we are between memory and absolute forgetfulness, and so on right straight through. A chain is no stronger than its weakest link, and man's area is no greater than a square of the smallest size. In other words, there is reliability, endurance, and action in that man's work, and because there is that much of reliability, because there is that much of action, and that much of endurance that is not being used to the greatest ability. What should man do? If, after introspection, he finds out his weakness, what should he do? There is only one logical thing do to, and that is to develop ability, and therefore increase the area. And we say, how can we develop? Suppose I have lack of memory; suppose I am forgetful, how can I develop memory? There is only one thing to do if we have a poor memory, and that is to get busy, realizing we have mental muscles, so to speak, and develop memory. If we have poor judgment, we should develop it. If we are dishonest, we should develop honesty; if we lack tactfulness, we should develop tactfulness, and so on. As darkness is dispelled by the light, so the negative is dispelled by the development of the positive, and that brings us to the foundation stone of this whole matter, and that is your ability to build business rests upon true education, and I would emphasize the word true. A good many people misunderstand education. A Canadian professor, the president of a university, said one day, when asked what education was, that education is—you know what education is don't you? He paused again, and said, Well, that is a big question; I will have to look it up and give you an intelligent answer as to what education really is. Education means to lead out or draw out, and what should we lead out if it is not the latent faculties and qualities. Our school system today, first class and splendid as it is, lacks in just that thought. In other words, they cram my boy, they cram your boy, and it is cram, cram, cram, all the way through.

There are four periods of education. There is the prenatal period, the period before birth, and these things are receiving more and more thought nowadays. Then comes the babyhood period, when the parental period comes. Then comes the scholastic period, when the boy or girl is in the public school and in the university, and then comes the greatest period of them all, the period of hard knocks, the school of hard knocks, whereby we are learning something all the time, how much, and how we are learning. To exercise, to feed my body properly and physically, I select good food, and have got to masticate the food. If I want to develop my mental muscles I feed these mental muscles on wholesome food, and I nourish the body, I exercise the mind, do just those two things. Therefore, by true education we develop the mind, we develop the body, and through them we can make for ourselves a stronger personality, and with a stronger personality we can inspire confidence, and will influence, and through them we render service, and in service we sell our ideas, and by selling our ideas we build a business. Business-building can be called the body of the institution; salesmanship becomes the life blood, and service is the heart; therefore, the heart that pumps the life blood of salesmanship into the body of business-building has back of the original thought service. In studying institutions, I have realized that the greatest institutions are the ones which render the greatest service. There are little stores, little places that stand there for ten or twenty years, and there is nothing doing. Business-building is governed very largely by the mentality of man. Just as a potted plant grows and grows, so man develops his capacity to think. There is only one thing to do when a plant keeps on growing, and that is to re-pot it, put it in a larger vessel, and mentally there is only one thing for man to do, and that is to increase his area, and therefore increase his capacity to do business.

The other part of my topic concerns business transactions and I shall only outline it in just a few words. We can divide a transaction into four parts. There is the salesman, the dentist; there is the customer, the patient. The thing to be sold is the service you render, and the sale rests wholly upon the psychology or the meeting of the minds in the transaction. It is the person that recommends somebody else that counts, and when we understand the laws of the mind we see that four steps are taken. First, attention, then interest, then desire, and then decision. Then we commence with the first thing. We get favorable attention; then we get a person interested, and then a desire to do a thing, and last, we get him to act. The difference between a good business man and a good salesman is the difference in the ability to get action upon the part of the mind of the customer, and this depends to a great degree upon the question of reading human nature. A man's instinct is never any greater than his successful recording of previous images. In other words, if you have seen an image, it means in your own mind you see another man like it, and you make comparisons. You do it intuitively, and there is where your intuition comes in, but if you make a false judgment, in the first place, you misjudge your man. I believe there are lots of truths and principles in this world which make for success. There are lots of principles governing the reading of human nature. We have the electric or magnetic in man, and it is worth a good deal for a dentist to know whether the man who sits in his chair is electric or magnetic. Then comes the next question of the acid and alkaline, one represented in the mineral kingdom. We have the vegetable acid, the lemon. You have the lemon type of individuals in the chair once in a while, and they cannot be sweet or feel sweet. They are not of amiable disposition. I have the honor of naming another, and I call it the citron type, another fruit, and it assumes the form of citronitis. It is a disease. Symptoms of this disease are glossiness of the seatus. (Laughter.) Sitronitis is a greater disease than appendicitis. The appendix can be removed, but there is only one way to deal with the fellow who sits around so much, and that is to tell him to get a move on himself, and then speak about the machinery on the inside. Then we have the mental and vital types of men, and we have all these kinds in the audience tonight. It rquires ability to pick out these different types of people. The motive type is the man of action, and I have to get a move on myself and be extremely practical with him. So, what we are on the inside is revealed by the exterior. You, as dentists, have to interpret or read these different types of individuals and deal with them accordingly. There are lots of misfits in this world, and it brings us back to character analysis to know ourselves and to know what we are best fitted for, and how best to mix with other people.

I have said nothing about the fourth part of the proposition, and that is the case. Whatever you do, you have rendered a service. You say, I have studied years and years and spent my time in school; I have had my experience in the school of hard knocks, and how can science, systematized knowledge, help me in understanding my case. Gentlemen, it is points, points, points that sell goods today, and not words, words, words. The veritable talking machine in business has passed. People want to know why, and it is the business of the dentist to tell them why, and to tell them why in a logical way. If a selling talk counts, it is just as practical in dentistry as it is in the ministry; but it is necessary to have a selling talk that people understand. You want to create a desire and action on the part of a patient to have the best work instead of the cheapest work.

There are many other points I would like to take up, but were I to do so I should violate one of the principles of salesmanship, namely, talk too much. Many salesmen and many dentists talk too much.

I would like to close an address of this character by referring to an old Arabian proverb: "He who knows that he knows, he is wise. Follow him. He who knows and knows not that he knows, he is asleep. Wake him. He who knows and knows not that he knows not, he is a fool. Shun him. He who knows not and knows that he knows not, he is a child. Teach him."

Here in this splendid meeting, in this splendid organization, you come together to learn, and, therefore, you put yourselves in the attitude and the spirit of little children to learn, and that is the only way knowledge can really be imparted, and that is to humble ourselves as little children. He who knows not and knows that he knows not, he is wise, and is ready to be taught.

Let me say to you, in closing, that if you have enjoyed or profited by what I have said half as much as I have enjoyed talking to you, I shall feel that my talk has not been in vain. I feel that I have been highly honored in having been invited to address you, and I am sure we have all had a good time. I hope you will apply some of the things I have told you. (Applause.)

Dr. D. M. Cattell, Memphis, Tennessee:

I did not expect to be called upon to participate in the discussion of the paper, but I am glad to be with you once more. It seems as though I seldom get to see you, but when I do, I enjoy it. I enjoyed the paper this evening very much, and I shall carry away with me three points that I know will benefit me even away down in Tennessee.

With reference to the remarks of the gentleman who spoke last, Mr. Tolles, I feel that it was worth the trip north to hear his talk. There was so much of what he said that I felt might be applied in my life. His remarks reminded me of another old proverb to this effect: "Teach new thoughts as though you taught not, but old ones as things forgot." There are many things which appeal to us as though they were surely new, but they are not, and it is well for us to forget some of these things we have been taught.

I wish to thank you for the privilege of standing before you and looking you in the face again. I am still a member of the Chicago-Odontographic Society, and as long as I live I propose to be one of you.

Dr. L. H. Arnold:

I was glad to hear someone speak of the technical side of handling office affairs, and Dr. Pitt has done it splendidly.

There is too little attention given to the daily routine of office records, transactions and accounts. A dentist is apt to go to the office in the morning with little or no idea of just what he is going to do with the cases he is to see, and often with but a hazy idea of just what has been done for them before. For instance, a patient takes the chair, and the dentist tries to think just what has been done and, to spar for time, says in rather an uncertain tone: "Er—how have the teeth felt since you were here?" "Oh, pretty well." Mr. Operator did not gain much information that time. "Hum—let's see—ah—do you remember—oh, it was this tooth, wasn't it?" "Why, yes, doctor; you put some medicine in it, don't you remember?"

Now, that gives the patient a very bad mental attitude, and things have to go mighty well to overcome the bad impression that has been given by the lack of exact knowledge on the part of the operator as to just what had been done and the conditions that had been found by former examinations.

We should know when a patient comes back to us just what we have done before, and when that patient leaves we should know just what we intend to do when he comes again. That is one thing which was nicely brought out in the paper—one of the details of the office routine, and this routine, if carried out to a logical end, becomes a very great help in the busy office.

In my office, instead of marking the findings of a mouth on the examination slip with a *lead pencil*—which marks could be readily erased—all the conditions found are entered in *red ink*—cavities in the teeth, fillings already in place, irregularities, abscess sinuses, pyorrhea pockets, missing teeth, old roots, crowns, bridges and plates—all are noted in *red* ink.

Any operation made for the patient is also noted on the slip, but this time in *black* ink, and the patient's attention is called to this fact, and also to the fact that the black ink covers the red perfectly, but that the red will not cover the black, and hence there is no possibility of an error against the patient's interest. Thus you will see that the red and black inks are an advantage over the lead pencil. All these little things help inspire the patient's confidence.

The laboratory details explained by the essayist would hardly seem to be of very great benefit to a small laboratory or to one in which the dentist did his own work only.

I was delighted with remarks of Mr. Tolles. He undoubtedly speaks authoritatively with regard to the teachings of Mr. Sheldon, and I am glad to know that Mr. Sheldon has corrected one mistake in his teachings, as it was laid down in the pamphlets at the time I took the salesmanship course.

At that time Mr. Sheldon taught that the breathing should be done in the chest—in the upper register, so to speak. I am glad to see that he has corrected this and reversed himself by now advising the correct method of breathing, which is the abdominal.

As I had occasion to elucidate some months ago before this society, salesmanship is undoubtedly a science, even though some members of the society scouted the idea, and I am glad to have such an able exponent as Mr. Tolles substantiate what I said at that time.

Outside of the mere business side of a practice, there are many things taught in the salesmanship course that have proved themselves of much value to me in my practice—such things as self-control, controlling sleeplessness, controlling patients, analysis of things that properly enter into a legitimate fee charge, and many other things that are very helpful to know.

Dr. H. H. Rohwedder:

I would like to say just a word or two in regard to the Sheldon School, as I took the course myself. It started me to thinking in the four ways that have been mentioned by the speaker. First, that there was some way of knowing myself better and developing my personal powers; second, that there was a way to read the other fellow; third, that there was a way to know my business, and not that Mr. Sheldon could tell me any better than I knew it myself, but there was logic underlying all business, either professional or commercial; that logic was divided into two component parts, analysis and synthesis, and that it should be my desire to construct my remarks in talking to my patients in such a way as to make them desire the best piece of dentistry I can produce, or the best service I could render, educating them to the fact that time, experience and skill required were some of the factors which constituted the cost in the case, and not so much the amount of material used.

As to the sale, the fourth point made by Mr. Tolles, I find in going over my books that the sum total for 1910 was fifty per cent over what it was in 1909. That means that I was able to sell more and better dentistry. It answered this one other question: I have always asked myself the question what it would be worth to me to be able to address a body of men like this, or any audience, in an easy, fluent manner? That is an accomplishment, gentlemen. The power to persuade is a very potent factor in business. The business man who has the power to influence is a business-builder and a business-getter. We should construct our remarks in such a way as to let our patients know that we know what we are talking about. It pays us to have a good command of the English language.

So far as personal appearance is concerned, we can all stand a little of that, because our personality is an important factor in our profession. A fine appearance, among other things, helps to make up our personality, and as I look back on myself and on others I can see where I could have improved in many ways. The fact of getting started in this way of thinking has been worth more than a few dollars and cents to me. Yes, it has been worth many hundreds of dollars.

Dr. C. E. Bentley:

As the chairman of the Program Committee, I want personally to thank the essayist of the evening and the speaker, Mr. Tolles, for his remarks. The Program Committee searched this city over for a man in the profession of dentistry who had reduced his profession to a business basis. The Drs. Pitt were the only gentlemen who were found, and I am sure the many little details connected with our profession that have been evolved here this evening has justified our choice.

With reference to the remarks made by Mr. Tolles, I am sure you will agree with me that it has been one of the rare treats of this organization, and I want to say for Mr. Tolles and for the school he represents that he has certainly set forth some fundamental principles of character building and personal attributes which we will take home, if we do not go to the school in a body. We will take home these things and study them for our own benefit and welfare.

While I am on my feet, I wish to move that this society extend a rising vote of thanks to our guest of the evening, Mr. Tolles of the Sheldon School, for his very instructive and interesting remarks.

Seconded and unanimously carried.

Dr. Pitt (closing the discussion):

There is very little to be said in closing. With reference to Dr. Arnold's remarks concerning the use of red ink, it may be important to use it in the notes on the survey slip.

With reference to the question of laboratory work, I will say this, that where there are two or more dentists in this city in one particular neighborhood, they could support one private laboratory, and they would do lots better work, and they would get much better work done, because they would have actual supervision over the work, and the only way you can get perfect work is by doing it yourself or watching it done.

I was very much pleased with the remarks of Mr. Tolles. I am sure we have all been profited by what he has said.

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting of the Odontological Society of Chicago was held at the LaSalle Hotel, Chicago, on Tuesday evening, December 13, 1910, at 8 p. m.

Dr. C. N. Johnson occupied the chair.

Dr. C. S. Case presented a paper entitled: "Results Obtained Through the Action of Orthopedic Force Upon Cicatricial Tissue."

DISCUSSION.

Dr. J. B. Murphy:

Mr. President: I appreciate it as a pleasure and a privilege to be here this evening. I had the misfortune to see this first case reported by Dr. Case when it was a misfortune to see it, because it practically gave a man the nightmare. I had today the pleasure of seeing the final result, as reported by Dr. Case, and it was a genuine pleasure. I had not believed before that it was possible with any method of pressure to produce the separation which the doctor has succeeded in producing of the two fragments of the mandible, and restoring so perfectly the formation of the mouth. The doctor avails himself of an element which he did not sufficiently accentuate, although he mentioned it a number of times, the continued pressure on the cicatricial mass. You know, in the management of strictures and contractures it has been the custom of the medical profession to handle these cases with interrupted expansion and contraction, and that is an error. The doctor turns around and uses continued pressure. In our work as surgeons we meet these strictures in the urthera, the rectum, and the cicatricial contractures that occur wherever an incision has been made in a place where you have continued contraction and expansion, as the fold of the elbow and popliteal space in the leg. Wherever an incision is made with intermediate contraction and expansion there always develops an enormous mass of connective tissue. That tends to get stronger and stronger, and inhibits motion. Wherever you put the same kind of cicatricial tissue on continued pressure absorption and diminution take place. I think the principle which the doctor has brought out tonight is far more important than the mere fact of the magnificent result he obtained, as applied to your line of work and ours.

Many years ago, when I was practicing on the west side, I was called to treat a stricture. My predecessor, who had been there, and who was most apt at handling strictures, the late Dr. Hyde, had succeeded in getting in a filiform bouge, and he took it out to get in a larger one, which he did not succeed in doing. When I was in Vienna in 1892 the professor said: "If you put in a filiform bouge don't take that out until you can get in a Number 6."

The massage treatment in the dilatation of strictures is in principle absolutely wrong. It develops every place an increased deposit of tissue. Now it has come to be the practice to leave the bouge in for hours and hours, and it causes absorption. What the doctor has succeeded in doing is to cause absorption of the infiltrated mass. In his final result not only was the jaw contracted, but he succeeded in expanding that contracted condition, which I have never seen applied to this particular tissue before. Now, when he has done that he has a splendid result in the upper portion of the jaw. Not only that, but he has prepared the patient for transplantation into that commisure, if he so desires, of bone, that will reproduce the mandible to practically the same size and shape as the remaining portion of the mandible to the necessary sustenance of the traction upon it. It has been only the last two years that we have succeeded in the transplantation of bones in a large compact mass to our satisfaction, and the striking part about it is that in transplanting before we endeavored to get cancellated bone because we thought that would be easily vascularized, while in our present efforts we use the most compact bone—that is, the crest of the tibia.

In a recent case, which I reported to the Congress of Surgeons some weeks ago, I showed an arm in which 18 c.c. of the upper portion of the humerus had been entirely removed, and in its stead 18 c.c. of the crest of the tibia had been removed and sewed into the capsule. That has all regenerated. About two years ago we had occasion to reproduce a portion of a tibia that had been destroyed, and in that case we transplanted a portion of the tibia five and one-half inches long from the opposite side onto the diseased side. You can understand what a colossal mass of bone that is. The basis of the transplantation of all bone is not that we take the periosteum, because periosteum is unnecessary. If you are going to remove green bone, and you reserve the periosteum in the tissue attached to the neighboring tissue, that is of great osteo-genetic force and power, but when you transplant periosteum the first thing the periosteum does is to die, and when it is dead it is as dead as Julius Caesar. The reproduction of bone depends on definite conditions. The bone from the same patient is the best bone to transplant, and it must be put in contact with living, healthy, aseptic bone. The new bone which is produced is produced by the Haversian blood vessels. We bring the part in contact with living bone below and above, and the Haversian vessels from here start into your Haversian canals of your transplanted portion. They destroy and absorb and rebuild, and the peculiar thing is that the first thing they rebuild is the new bone of identically the same shape as the transplanted portion. Then, when the patient starts to walk, nature fills it right up, and in a skiagram taken thirteen months after the operation you could scarcely differentiate it from the original.

In this case the doctor has expanded the mouth to the full degree essentially through the adjustment of the teeth on the side. He has so much healthy tissue that he could implant it into that. It will originate bone from both sides through the Haversian vessels that will penetrate the canals. It is a peculiar thing that these Haversian vessels will not go into and reproduce bones in animals. That has been beautifully illustrated in the work of a noted writer of Paris, who has been transplanting ovaries. He found if the patient's ovary was imbedded in adhesions he took it out and imbedded it in the rectus muscle, and it healed there. When he took another ovary and transplanted it it did not heal. That shows how necessary it is to have the identical structure from the same individual to have the best results. If the bone were transplanted here it would be bone from the crest of the tibia of the same patient. The result seems to be all that the patient could desire.

I was very much interested in the other case, which involves two interesting and important principles that are not practiced. It has come into our consideration more recently in connection with our orthoplastic work. In 1902 we had the first operation of the production of a new hip joint following ankylosis. The boy had been shot through the abdomen, the bullet going into the acetabulum, and breaking off the head of the femur. The doctor repaired the wounds in the intestine, but when he got through he had a sinus leading down to the right illiac fossa. The boy had his leg up in this position, and they believed the bullet went into the psoas muscle, but in place of that it went into the hip joint. We first opened the abdomen, and took out the head of the femur through the abdomen. When that was healed we decided to do an orthoplasty, and took advantage of a well known principle, that if a fascia and muscles are interposed between two ends of a fractured bone the bone will not unite. There is another principle in connection with the management of ankylosed joints that has been fixed for a long time. When a joint has been fixed for a long time it is not necessary to have ankylosis. There is a contraction that takes place in the capsule of the joint. The fibrous capsule is equal to the strength of the bone if the force is exerted suddenly and with sufficient severity. This fibrous capsule is so strong that if you take the fibrous capsule, and cut off the muscles from the elbow joint, you will often fracture the bone before you will fracture the capsule. This boy had fixation in this position for eleven years. We cut the muscles in front, and we could not move the wrist half an inch before we divided the muscle, and we figured out that the cause was the capsule. We made another incision, freed the muscles, nerves and everything, and drew a knife across the capsule and it dropped down. You have to reckon, however, that you have the muscles situated a long distance from your fulcrum and your tip, and that the slightest muscular force, if exercised, will give you synovitis and subsequent ankylosis unless it is continuously applied. The interposition of the aponeurosis of the temporal muscle in the mandibular position has been successfully accomplished. It is a difficult operation, because you must put the flap in, and secure it on the inside. When that is done, however, I find that it is necessary to divide the muscles, and permit the temporal muscle to be practically free on account of the enormous leverage it has. In the subsequent management of the case we have had some interesting experiences. I recall a girl came to me at 26 for a burn of the mouth at 18 months with lye. All the nourishment she took was through a little canal about the size of a lead pencil. Her teeth were destroyed by cicatricial contraction. There is no amount of continued stretching that does, because you have no amount of intervening tissue. If you can divide that tissue clear back to the pillars of the pharynx and interpose half an inch of healthy tissue, you can stretch that half an inch to three-quarters, and finally to an inch. There is a peculiar thing about these cicatricial attachments. If you will divide them in the leg, wherever you put in an annular scar, and there is the slightest friction, it will contract and contract and contract. If you will cut that in two pieces and put in a strip of skin an inch wide that stretches as the contraction takes place, and it is availing yourself of that principle that permits the mouth to be divided. Wherever you will put the limb under continued pressure, never to the degree to pain, then you will produce the type of absorption the doctor produced in this case.

Dr. Thomas L. Gilmer:

Mr. President: I have been much interested in the reports of these cases by Dr. Case, also in the eloquent and forceful remarks of Dr. Murphy. To me it is an interesting coincidence that just twenty years ago I presented to this society an original mechanical method for the support of the fragments of the mandible after a portion of it had been removed. It consisted in caps cemented to the lower teeth remaining, with a flange secured to them, which rested against the buccal surfaces of the upper teeth. This appliance permitted the opening and closing of the jaws, at the same time holding the fragments in their normal relations to the upper jaw. I have employed it several times since, following exsection of the mandible, to hold the fragments of bone until cicitrization of the soft tissues had taken place.

I saw the patient indicated in Dr. Case's first citation previous to his operation for the separation of the two fragments which had been drawn toward each other by the contraction of the soft tissues, and the condition was deplorable. I also saw the case today, and the result has been marvelous. Had Dr. Case never done any other valuable thing for humanity, this would have entitled him to great honor.

A surgeon should think twice before he removes a section from the mandible. It places the patient in a deplorable state. In operations on the mandible, unless the entire bone is involved, it seems to me the surgeon should leave a portion of the jaw intact, to give support, rather than do the more radical operation, since if he is dealing with the most malignant growth, the epithelioma, then no operation promises much more than temporary relief. There is a limit to which we may go in the soft tissues, with no certainty that we have included all of the parts involved. The eye much more readily recognizes the extent bone is involved in disease than it does in the soft tissues, then why should we go farther in removing the osseous tissue than to reach apparently healthy tissue? The conservative method is especially applicable in all cases of giant celled sarcoma of the mandible, the least malignant of all the neoplasms. I have in numerous cases removed growths, histologically giant celled sarcoma, from the mandible, leaving a part of the jaw intact, and rarely has there been recurrence, even after many years. It would have been little less than malpractice in these cases to have taken out an entire section from the jaw. It is best to take some small chance of recurrence rather than do a radical operation and maim the patient for life.

I will recite one case of giant celled sarcoma which required, as a result of its removal, an appliance, but the necessity for such an appliance did not occur until two years after the operation. This, as in Dr. Case's appliance, carried a partial artificial denture. In this case only the base of the anterior portion of the jaw, not the alveolar process, was involved, reaching from cuspid to cuspid. Recovery was prompt, but by the end of the second year absorption of the alveolar process about the roots of the teeth, above the part involved in the disease, destroyed the continuity of the bone. The loose teeth, including the incisors, cuspids and left first bicuspid, were removed. Owing to slight rotation of the two halves of the mandible on closure of the jaw, a solidly fixed appliance attached to the remaining teeth would certainly loosen them, therefore I fitted bands to the remaining bicuspid and molars on the left side and soldered to them, on their lingual aspect, a tube to receive a heavy platinum-gold wire. On the bicuspids and molars on the right side I placed bands, and to these soldered the other end of the wire, which had been fitted into the tube. On this wire, bent to conform to the shape of the jaw, I mounted a denture. I than cemented the bands carrying the tube onto the teeth, then placed the wire in the tube and cemented the other side, which was the fixed end. This appliance did good service for about one year, when from constant hammering of the jaws the wire on the left side became crystalized and broke. I repaired it several times, but in each instance it lasted a shorter time than before. I then placed tubes on both sides, so as to give freer movement of the two parts of the jaws. This lasted about the same length of time as before. I then used platinum irridium wire with a similar result in about the same length of time.

I then thought out another scheme, wherein there would be the minimum strain, no matter how much the jaw moved in mastication. I used the Roach ball and socket joints, used for the retention of partial dentures, only having them much heavier. These are slotted tubes, which receive the head of a ball with a shank extending out at right angles to the tube. I soldered the end of one of these tubes to the bands horizontally with the slot set lingually; the other tube was soldered to the opposite bands perpendicularly, the slot opening anteriorily. The shanks of the balls were soldered to the denture. It is easy to slip the ball in the tube on the left side, then drop the other into the opposite niche. This appliance has been worn for months with absolute comfort, and there is no indication of further difficulty. There is no undue strain on the banded teeth or on the appliance, and the denture is easily removed by the patient for cleansing.

The main trouble with appliances attached to the teeth to support severed jaws is the heavy strain on the teeth to which the appliance is attached. Are they going to be permanent? I fear not; at best it must be from the very nature of things only temporary, as sooner or later the teeth will loosen and become useless from their being used for a purpose for which they were not intended. On this account I am delighted to know that hard tissue may be transferred from the tibia to the jaw, as indicated by Dr. Murphy, or from the eighth costal cartilage, as it has been done by Dr. Viliary P. Blair of St. Louis. I think in both Dr. Case's and my patient an effort should be made in this direction, and our mechanical appliances, or similar ones, used only to support the jaws during cicitrization and for immobilization while the bone is being habituated.

In conclusion I wish to thank Dr. Case for the courtesy he has shown me this evening.

Dr. F. E. Roach:

Mr. President: I do not know that I can say anything that will be of interest. I am exceedingly interested in this work from a mechanical viewpoint, and in all things that Dr. Case undertakes to do he exhibits his masterful hand from this viewpoint. The point that especially interests me is the use of the bar splint I showed at the October meeting of the society. It pleases me that he has made use of it, and if it is valuable in an extreme case of this kind we should make more use of it in our general practice. It extends the life of the teeth, maintains the relationship, and is a very important feature.

Dr. J. E. Hinkins:

Mr. President: I feel that I am entirely out of my class in the discussion of this subject. After seeing the case presented here, seeing the appliance in the mouth, and the beautiful, healthy condition of the soft tissues, I can only add my appreciation and compliments to Dr. Case. I also had the opportunity of seeing the lady eat her lunch, and she masticated her food as well as the rest of us.

Dr. J. G. Reid:

Mr. President: I am glad that I was fortunate enough to see this case. It interested me, and while examining the case today I tried to picture in my mind what the appearance of that individual was when the accident occurred. I did really figure out a pretty bad state of affairs before I got through with it. She was deformed, her arms lacerated, part of her hand gone, and still that was not the bad deformity after all. I was more interested in the restoration of the chin. I could see where there has been a very remarkable development of the chin, and it appears that it may still progress. I appreciate the kindness of Dr. Case in allowing me to see the results that have been obtained.

Dr. L. L. Davis:

Mr. President: We have had an opportunity tonight to listen to the illustration of two cases that only more strongly emphasize the necessity for specializing along the various lines in the dental profession. When we think of the results already obtained it would indicate that in years to come something far beyond even what we have heard tonight will be the result. I can remember when even the thought of referring the plate work to another practitioner was the worst possible thing we could do. Here we have a man who devotes his whole time to irregularities and deformities of the jaw. This case shows what can be done, and has shown to me that when I have a case of this kind I should send it to the proper man to have it cared for.

Dr. W. V-B. Ames:

Mr. President: Just a few times have I seen people in the predicament pictured by Dr. Case in his first case. It is a satisfaction to me to see this condition corrected, and this woman placed in a condition to enjoy existence, not so much that I ever expect to handle one, but for the sake of the men who do meet this condition. Dr. Brophy may remember when we were in Toronto, and he was called in to see just such a case. The middle portion of the mandible had been lost. That is one of the cases I happened to see, and I do not believe that we figured out that there was very much help for that man that day. I am glad it has been shown that by gradual pressure, and by the use of this appliance, there is a fairly good chance for these people to recover the use of the mandible.

Dr. Truman W. Brophy:

It is very gratifying to me to have listened to this paper. It is always gratifying to have with us our friends who are eminent in their respective fields of work.

We have been taught a lesson this evening, and I propose to better illustrate what I mean by relating an incident of a few years ago. A lady was riding in a hansom cab with her little daughter. As the careless driver was rushing along, an aged woman came before the horse and was about to be run down when a number of men hastened to her side and lifted her out of danger. The little girl said to her mamma: "Mamma, do you know what that makes me think of?" "No," said the mother. "It just makes me think we all belong together." The lesson we have learned, it seems to me, is this—that we all are inter-dependent.

Men in their busy lives, with their strong desire to acquire knowledge in their fields of labor, often-times turn and wonder what is best to do, and then something unexpected happens and they find others who have been studying along their lines come to their help, and work is accomplished that they never dreamed possible.

Dr. Case never would have accomplished what he did had it not been for the skill he acquired in working out problems in orthodontia, which have placed him in a position second to no man in the world. Through his genius in correcting facial deformities that are so conspicuous and so much to be dreaded, he has become a master in his field of work. He stands alone in that special field of work. If I had it in my power I would pay him a greater tribute.

Fortunately for us, we have had the great privilege of listening to a master surgeon, a man whose name and fame are co-extensive with the practice of surgery; and we need to include, to complete the trinity the name of another man who has worked for more than a quarter of a century in our own state, a man whose faithfulness and whose fraternal greetings we enjoy, a man who stands high as a surgeon in his special field of practice. I refer to my friend, whom we do not see here as often as we would like to—Dr. Thomas L. Gilmer.

The Odontological Society realizes to the fullest extent, I hope, the opportunity we have had to sit here and listen to these masters, and to profit by their experience and teachings.

I had something to do with this case in its early history. When I was called in I met a woman who had not only been in a wreck, but she was wrecked. I found a compound comminuted fracture of the mandible. I found destruction of the left frontal sinus. The whole supra-orbital ridge was carried away. The symphysis of the jaw was partly carried away, and the right hand was gone, save only the forefinger and the thumb, and there were other serious injuries. By careful manipulation I succeeded in bringing the comminuted parts together, but unfortunately they failed to maintain their vitality.

She came later to Dr. Gilmer, and then to Dr. Case, who has succeeded so well. Like Dr. Gilmer, I believe that while Dr. Case has made for this woman a most beautiful and useful appliance, we must regard the retention of these teeth with some uncertainty. I told Dr. Case that I was of the opinion that the ultimate outcome of this case must be the implantation of bone, so as to secure, if possible, a bony union between these fragments.

I remember a great, strong football player, who had been a member of a Nebraska team. He sustained an injury which resulted in the breaking off of a right lower lateral incisor tooth, and the destruction of the pulps of all the lower incisors. Following this accident he developed sinuses beneath the chin. Later suppuration occurred and an abscess lifted his tongue. Some one who knew little about surgery declared he was suffering from a malignant tumor, and the only cure was to remove the symphysis, and this was done. The result of it was the drawing together of the fragments and the mal-occlusion of the teeth. It was clear to us that the only trouble he had ever had was the formation of a dento-alveolar abscess at the apices of the three remaining incisor teeth. This was a serious surgical error. In that case I did nothing. I did not know what to do except to separate the parts and put in a denture. Today we employ bone grafting.

I want to call attention to an appliance I saw used a good many times after it became necessaray to remove a part of the mandible. In about seven cases I have used this with satisfactory results. Since the removal of part of the mandible will always result in the drawing downward and inward of the long fragment of the bone and establishing a mal-occlusion of the teeth, to overcome that condition long enough for a mass of cicatricial tissue to form and to preserve the occlusion of the remaining teeth, this appliance will enable us to maintain such an occlusion.

At the meeting of the Thirteenth International Medical Congress, at Madrid in 1903, Dr. Martinet of Paris exhibited a device which this very rough drawing of mine will, I think, make clear to you. It was done by banding three or four teeth above, and banding below, and then to the bands above a piece of platinized gold was fastened and brought pretty nearly straight down, so as to escape the lower teeth. To the bands about the lower piece he also soldered a piece of the same metal in such a fashion that that would pass outside of the great broad flange of gold that extended from the upper bands downward. In that way the bands below came outside, and the bands above came inside. The mandible was held in such a fashion that the teeth would occlude whenever the patient desired to ave them do so. After the paper was finished I made the statement hat it was worth a trip to Madrid to learn this fact. The work that r. Murphy has done in restoring the motion of the mandible in cicatricial cases has reflected further honor upon his achievements in surgery, and I have listened with the greatest pleasure to the recital of his experiences in using the integument to prevent the recurrence of cicatricial tissue. Of all the things I have ever undertaken to do in the field of oral surgery the most discouraging has been in the treatment of cicatricial contraction of the cheeks. You may take out that cicatricial tissue thoroughly and maintain perfect motion of the mandible, and you may put in braces and keep the mouth open for three or four months, and think you have mastered the situation, and in less than two months it will be right back where it was before. He has shown us that by the use of the skin we will be able to overcome the very distressing deformity to which these very unfortunate patients are subject.

I appreciate more than I can tell, the importance of this meeting, and I believe I have been as much or more benefited than by any meeting during the past year.

Dr. C. N. Johnson:

I simply rise to pay my tribute to Dr. Case, and to thank Dr. Murphy and Dr. Gilmer. I had the opportunity of seeing this case early in Dr. Case's management of it, and then I saw the case again today, and the revelation of what was accomplished by the simple method he has devised has given me greater respect for the possibilities of his specialty, and greater respect for the man individually. The transformation in the contour of the face, the width of the chin, and general improvement in the appearance was one of the most gratifying things I have seen. I congratulated the lady. Tonight it is my pleasure to congratulate Dr. Case.

I cannot sit down without saying that the discussion given us tonight by Dr. Murphy has been an inspiration to me, and I feel it a compliment to this society that a man of his attainments should come here and give us this discussion. It seems like the good old times to have Dr. Gilmer here again, and I hope we will have him here oftener in the future.

In closing the discussion Dr. Case said:

I feel that you have paid me altogether too much honor. It is simply the proper grasping of conditions and the carrying out of common-sense methods that has enabled me to accomplish these results. I feel particularly gratified and proud that through the influence of this work I have been instrumental in bringing here as my guests of the evening the two men above all others whom this society would more than delight to honor: Drs. John B. Murphy and Thomas L. Gilmer. Dr. Brophy's tribute to them, I am sure, expresses the true sentiments of every member of this society. Their remarks were very instructive and seemed to me far more important than the paper itself.

In the case of restoring the lost portion of the mandible, there is just one thing in regard to the joints of the denture that is of the greatest importance to its continued durability, and which I wish to emphasize after hearing Dr. Gilmer's experiences—i. e., the pivotal lines of two joints must be exactly parallel to each other, otherwise the irregular strain upon one of the hinges would either break it or dangerously loosen the teeth.

I hoped to hear something more with regard to the possibilities of correcting ankylosis, and what might be accomplished with an appliance similar to the one employed by me, that the patient can readily remove and replace. In case of cicatricial ankylosis it seems to me it would be possible to keep up that motion, and finally establish a fair degree of masticating power in the jaws.

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EDITORIAL.

THE AGREEMENT BETWEEN THE DENTAL PROTECTIVE ASSOCIATION AND DR. TAGGART.

Since the publication in our January issue of the agreement between Dr. Taggart and the Dental Protective Association, much comment pro and con has been made regarding it. This was naturally to be expected in a matter of so much consequence to the profession. There seems to have been some misconception regarding the motives which prompted the agreement, and this is well illustrated in the following statement which was read by Dr. W. A. Alexander before the Madison County District Dental Society, a component of the Illinois State Dental Society:

STATEMENT BY DR. ALEXANDER.

"The use of the disappearing wax model in reproducing forms of jewelry, etc., is an old mothod and several authentic instances are offered where dentists used this method in dentistry. We owe it to Dr. Taggart for presenting to our profession the method of casting and making it generally known and his claims for financial returns are now and have been causing considerable agitation in the minds of the profession. His law suit as a test case, brought against Dr. Boynton, of Washington, D. C., caused the committee of five prominent men to be appointed for the purpose of collecting funds necessary to defend Dr. Boynton. Dr. Boynton could not, and should not, stand the heavy expense and loss of time from his office in defending this, which is practically a suit against the dental profession. This was entirely proper as it interested every dentist and many of our friends in Illinois as well as other states were asked to contribute. This action was strangely necessary in as much as our profession had an organization for this very purpose, namely, The Dental Protective Association.

"How many members there are in this association, I am unable to say, but it is national in its scope, and it is supposed that its motive was to protect members from any claims of this nature until the claimant could prove the legality of such claim. For some reason unexplained, this association did not take up the matter and the individual effort above referred to was necessary to prevent his getting a decision by default.

"About one year ago one of the northern district societies appointed a committee to interview Dr. Taggart, to ascertain what proposition he would make in the way of allowing dentists to use his casting method; he made response offering his casting machine and the rights to use same for $110, or upon the payment of $50, rights would be given to make castings with other devices. He added in very concise words, that this offer would be granted for a very limited time and if dentists did not take advantage of this offer, matters would be placed in other hands who would be less considerate.

"Again, the Dental Protective Association did not step forward to ascertain whether or not this was a legal demand.

"We are now confronted with another proposition months after the former one, at bargain prices, the same rights for $15. If his claim was legal when he demanded $50, why at this late day does he offer it at $15? And why does the Dental Protective Association organized to protect its members and dormant so long act in conjunction with Dr. Taggart in this matter? The association organized to protect us against such demands, did not make any apparent effort to defend the case brought against Dr. Boynton and it is known that members of the association were solicited and did make cash contributions to the fund solicited by the committee of five in Washington. The question arises, why does it now come forth and use its good offices in getting its members to pay for the privilege for the Taggart rights, yet to be proven? The gentleman in charge of the association has always stood for high ideals in the code of ethics and to sell an idea brought out by an ethical professional man was held unethical.

"Dr. J. B. Murphy, the eminent surgeon and of international reputation, invented what is known as the Murphy Button used in surgical operations and gladly gave his invention to his profession. No one denies that suitable recompensation is due any professional man who has spent time and money in such endeavor. The Dental Protective Association in a proper spirit should not endeavor to keep or with-hold the rights due any man, but it should see to it that the profession at large should not be called upon to pay moneys to a man until his claims are proven. There is a right and wrong way, and tribute where tribute is due, should be our line of action whether the man be Dr. Taggart, whom we all admire for his professional skill, or another man of less renown.

"The present action of the association in making a deal with Dr. Taggart and arranging for its membership to pay him a certain sum before his claims are proven legal, gives rise to unkindly criticism and tends to destroy confidence among the dental profession and works harm for future organized effort. It is interesting to note that had the profession been compelled to pay his first demand of $50 each, that from approximately 30,000 dentists in the United States, he would have received a sum of over one million dollars. Eliminating the entire United States with the exception of Illinois, and not to mention those who are practicing in foreign countries—Illinois with approximately 3,000 dentists would yet give him the handsome sum of $150,000. If we agree to send in our $15 or $25 and in two or three years we must have another machine, can we under this contract buy and operate any machine on the market, or must we then buy of Dr. Taggart?

"These words are written in a kindly spirit and the only motive is that we as an organized body should not move in a way tending to destroy confidence in our organization nor establish a precedent which is likely to cause trouble in the future. A great many members of our state society are members of our association. Dr. C. N. Johnson, one of the eminent men of our profession is also a member and likewise an officer of the Dental Protective Association. He is also editor of the DENTAL REVIEW, which is our official publication. Dr. Johnson enjoys the fullest confidence of everyone and is in a position to place these matters clearly and properly before everyone, and the writer suggests that this society adopt resolutions inviting his good offices and that said resolutions be published in our official organ, with a view that all dentists may read same, likewise, the reply of the association."

When a man comes out in a calm and courteous manner and asks questions bearing on any point at issue, he is entitled to the consideration due a gentleman and to have his questions answered. First let it be said that there is an erroneous idea regarding the real function of the Dental Protective Association. It was organized for the purpose of preventing abuses in the profession and not to deprive any man of his legitimate rights, whether those rights be patent rights or otherwise. The association is not larger or more powerful than the patent laws of the United States. If Dr. Taggart's patents be proved invalid no one will have to pay for using the method, and in this connection no one will be any the worse for the agreement made between Dr. Taggart and the association. But here is the point. Supposing Dr. Taggart should win his case, what would be the position of the dental profession regarding the method if no agreement were made whereby the profession could be protected? It would simply mean that every man using the process would be at the mercy of Dr. Taggart's lawyers in arranging terms of royalty, and these terms after a long drawn out litigation were likely to be such as would not be relished by the members of the profession.

As to the probability or otherwise of Dr. Taggart winning his suit it is quite impossible for any one to know how a case will go in court, but the circumstances surrounding some of the testimony presented against Dr. Taggart were of such a nature as to seriously jeopardize the prospects of the defense in the minds of those familiar with the matter. The character of this testimony cannot, for obvious reasons, be published at this time, but it was thought to be reasonably certain that it would prejudice any court in Dr. Taggart's favor. The moment this fact was brought to the attention of the president of the Dental Protective Association, he immediately began negotiations leading to an agreement whereby the members of the association should be protected from possible abuse in the event of Dr. Taggart winning his suit. It was not so much the likelihood of Dr. Taggart abusing the profession himself as it was that he might be tempted by the offers that were being made to him to dispose of his patents to others outside the profession and who would enter into the transaction on a purely commercial basis and levy the last possible cent from the profession allowable by law. And in this connection it is worth relating at this time that under all the stress and worry of disappointment and contention, Dr. Taggart stood out resolutely against tempting offers made by moneyed men who thought they saw wonderful opportunities of forcing fortunes from the users of this process.

Dr. Alexander justly remarks that there is a right way and a wrong way, and it is probable that in the limitations of human judgment mistakes have been made. It would be strange, if in conducting any negotiations, mistakes were not made. But we do not believe when the facts are all known that the equity of the agreement between the Protective Association and Dr. Taggart can be questioned. Dr. Crouse, the president of the association, has been criticised for not entering, at the outset, into the defense of the suit now pending. Dr. Crouse states frankly, and has so stated from the first, that he believed Dr. Taggart was entitled to some compensation for his invention. In fact, we have never heard a single individual who did not so express himself. The only point of contention has been the amount of this compensation and the plan for its consummation. In arriving at the amount, it is impossible to make all men see alike, but the sum of fifteen dollars for the lifetime of the patent does not seem an unreasonable amount for any man to pay.

It would appear as if this were an equitable arrangement which, when fully understood, could not be justly criticised by anyone.

A certain personal feature of this case ought to be emphasized at this time. The intimation has been made from various quarters that there was collusion between Dr. Crouse and Dr. Taggart over the agreement. How absurd such a charge is can only be fully known by those who were familiar with the entire negotiation. The editor of this journal was so placed in regard to the transaction, that he had the bitter experience of trying to harmonize the points of view of these two men who were so diametrically opposed to each other in their ideas that at one stage of the negotiations it was found impossible to allow them to come together in any conference for a period of three weeks at a time through fear of a repetition of the open ruptures which had so frequently marked the negotiations in the past. After experiencing several months of this kind of nerve-racking contention, the charge of collusion sounds strangely weird and unnatural in the ears of those who were obliged to take part in it. There may have been mistakes, but there was no collusion.

THE EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 7.)

My Dear Boy:

I intimated in my previous letter that it would be well for you to keep a constant watch on the difficult cases under treatment by the other boys in their clinical work. In this way you can pick up many important points in practice, and you can also at times be of great help to your fellow students. You may recall my admonition when you first entered college to help others at every opportunity. That advice still holds good and during your senior year you will find many chances to put it in practice. A large number of the boys need help in their early efforts at operating and while you cannot, of course, take the place of a demonstrator, yet there are many little ways in which you can render assistance. You can help adjust the rubber dam in a difficult case where the student needs all the hands he has for half the problem he has before him. That boy Billy, whom you took under your wing in the freshman year, still needs your advice and help. But be careful. There is a place to draw the line, and you must learn to draw it. If you go on doing too much for Billy you will spoil him. It is well to help him and lend him encouragement till you get him started, but the moment you take an instrument out of his hands and begin to do his work for him, that moment you start a degeneration in Billy, which will do him more harm than good. That is a weak point with our demonstrating system, as ordinarily carried on. What we need to teach our boys is more self-reliance, which they will sorely require when they get out into practice. The habit of relying on others and trying to squeeze through college on work performed mostly by demonstrators or other students, is a most pernicious one, which inevitably reacts on the student who accepts the aid. If Billy begins to show signs of shirking you have my authority for bringing him up somewhat briskly. Say to him: "See here Bill, you're beginning to renig on your work, and that won't go with this class. The boys are willing to help, but they won't help you hard enough to make you lazy. Now take a reef again and get to work." (Personally, I wish to acknowledge that I have not the vaguest idea what the word "renig" means, but I have heard the boys use it and it seems to be quite expressive).

But to speak seriously, this leads to something which I should long ago have brought to your notice. Fortunately for you the nomenclature of our profession was somewhat systematized before you came into it but even yet there is much laxity by many speakers and writers in the use of technical terms. I want you as a young man just entering the profession to learn the use of correct terms as well as the correct use of terms. I have already told you to study the art of expressing yourself, on paper and otherwise, in a definite manner which cannot be misunderstood and if you do this in writing on technical subjects you must become familiar with the the correct technical terms. You are taught these terms in college but the ingenuity of boys to pick up wrong terms out of college "passeth all understanding." The rank and file of the profession stick to the use of terms which have been rendered obsolete by a consensus of opinion among the philologists with a persistence worthy of a better cause, and yet there is some reason for it. Habit is strong and when men have always called the first permanent molar the "sixth year molar," and the third molar a "wisdom tooth," it is natural that these terms should slip from their tongues more readily than newer and better terms. So I have more than a modicum of patience with the older practitioners, but from you young fellows I want to hear none of this "eye tooth," "stomach tooth" kind of talk. Neither do I wish to hear you speak of the "nerve" of a tooth, nor of a "job" when you mean an operation, nor of a "price" when you refer to a fee. Take a hint from these few suggestions and drill yourself in the use of proper terms.

Remember one thing in your senior year, that it is not only the necessity of fulfilling your practical requirements as to the quantity of work you do, but that the quality is of equal importance. It is astonishing to note the ingenuity which some students display in their ability to stop just at the number of credits which is the minimum for a passing grade. If four hundred and fifty is the requirement there are altogether too many who lose all interest in their work at four hundred and fifty-one. Now the 451 boy is the one I am skeptical about just as I am of the carpenter who stops with uplifted hammer and refuses to strike the blow already started just because the clock strikes the closing hour. The man who times himself to do just enough and not a bit more is dangerous. He is putting more energy into the timing than he is into the labor, and he is more interested in the clock than in his work. It is said that "hell is paved with good intentions," and if this be true it is equally true that the ocean of human achievement is strewn with the wrecks of the 451 man. No man ever ruined himself physically, mentally, morally or financially by doing just a little more than was required of him, and many a man has made a fortune by doing this very thing.

Do not stop at 451. It is possible that you may learn more of real significance to you in the work you do after that than in all you have done before and you cannot by any chance gain too much practical experience while in college. Besides, as I have said, it is a matter of quality as well as quantity, and grade counts as much as volume of work. Do not be afraid of working your dear young life out at an early age. For one boy who overworks in dental college there are numbers who waste their energies in scheming to get out of work, and the boy who comes out at the end in good condition physically, mentally and educationally is the one who has applied himself most conscientiously to his work. Deliver me from the 451 boy.

You are now nearing the close of the senior year and the tension increases. That diploma is hanging alluringly before your eyes as if it were the open sesame to all future happiness. It is not in my heart to belittle your diploma after the three years of work you have expended in its quest, but I say to you in all seriousness, that it is not worth the parchment on which it is written unless it represents the acquirement on your part of such information and skill as shall enable you to be of some special service to humanity. It will surely not bring any prolonged happiness in itself. After it has served its useful purpose of admitting you to practice or to a state board examination, its chief function will be to remind you at times of the dear boys who were your associates in college and of the teachers whose interest in you during those three eventful years has endeared them to you in a peculiar way.

I am sorry for the professors and for the students in any institution where there does not develop a real and lasting offection between the two, and where the parting at graduation, though necessary, is not more sad than sweet. Teaching is the most interesting of all pursuits because it witnesses the unfolding of mental processes, and the development of character in young men at their most promising and most critical age; and the greatest reward a teacher has is the satisfaction of watching from month to month, and year to year, this unfoldment in the boys committed to his care.

I shall say something in my next letter about preparing for final examinations and meeting state boards, though in reality your preparation should have been steadily going on since your first entrance in college.

Cordially yours,
THE PRECEPTOR,
C. N. J.

BOOK REVIEWS.

THE BUSINESS PROBLEMS OF A PROFESSION. By FREDERICK CROSBY BRUSH, D. D. S. Pages 88. Published by the DENTAL DIGEST New York, N. Y.

Here is a little book that should be in the hands of every young graduate, and for that matter, every old graduate. It is filled with good, plain, common-sense ideas as to the proper methods of conducting a practice, and no man in the profession can read it without receiving benefit. Dr. Brush has evidently given much thought to the various problems which confront the beginner, and he brings to his work a conscientiousness of purpose which must inevitably impress the reader. If every young man starting out in practice would only study this book it would help to steer him clear of many of the pit-falls which beset the pathway of the beginner, and he would early come to an appreciation of what is meant by expenses and receipts. Too many professional men conduct their affairs in a slip-shod, haphazard manner, and the consequence is that we see in our ranks so many men who have no commercial rating, and who have nothing to look forward to but an old age of poverty. If Dr. Brush's suggestions are carried out this need never be the case.

CORRESPONDENCE.

New York Letter.

My Dear Mr. Editor:—

At the regular February meeting of the Institute of Stomatology, held at the Academy of Medicine, Dr. F. E. Davenport presiding, Dr. Ned A. Stanley, of New Bedford, Mass., read a paper entitled: "The Treatment of Pyorrhea by Instrumentation."

Dr. Stanley is one of the instructors in the Harvard Dental School. The treatment of pyorrhea is one of his special subjects. In the text of his paper he remarked that he chose the title as given, because it is the treatment that he is familiar with and the one he believes in for the correction of the affection; because as a preliminary to systemic treatment, thorough instrumentation is insisted upon, and finally, because he believes that less than three per cent of the cases so treated require anything further than an application of some local remedial agent.

Dr. Stanley went on to say that not until recently had he felt that he had done all that could be done with instruments. "Not until I secured this very comprehensive set of little planes did I obtain results I had been striving for."

As to what constitutes a cure was expressed somewhat thus: "To arrest the progress of this destruction and restore the parts to health must constitute a cure." "The peridental life is of vastly more importance than the pulp life, because through the maintenance of this rests the foundation of the dental structure." "In so far as we depart from the normal, conditions become more prone to disorder and offer less resistance to dectructive agents." "The maintenance of the proximal surfaces is absolutely essential to the elimination of one of the great causes of pyorrhea." His advice was to examine the teeth at the gum margins in the early stages of the disease as carefully as if we were exploring for cavities.

"The symptons of pyorrhea are quite misleading, at times to one unfamiliar with the manifestations occasionally complained of."

The doctor spoke of dry pyorrhea, and indicated as such cases of "retreating gums, with no apparent cause; gums look healthy, teeth are firm and yet there is much loss of membrane and process." "There must be a rim of dead or dying membrane which should be removed, taking away the germ-bearing area." "It can be likened to a surgical operation, you remove the dead or dying tissue and the parts return as nearly as possible to their normal condition and function. These cases are easy to detect and simple to treat when once the fundamental idea of surgical care has possession of the operator."

One of those who discussed the paper—Dr. Tracy, I think—took exception to the term "dry pyorrhea," saying that there could be no such condition, etc.

Dr. Stanley makes it a practice to see his patients at intervals of four or six weeks for prophylaxis following pyorrhetic work. He also emphasized the need for daily care on the part of the patient.

The concluding paragraph of his paper read somewhat as follows: "In treating pyorrhea a man should have the most perfect instrument made for the work and one with which the most thorough operation can be performed."

He then showed a case of instruments made by Dr. Hartzell, consisting of a hundred or more on the order of the old push and pull scraping instrument—Dr. Geo. H. Winkler invented the instrument years ago—the blade being bent at a right angle to the shank.

"Pyorrhea will never be cured by selective medicaments vaccines, systemic treatment or by the man who does not grasp the subject with his finger tips as well as his brain."

Dr. Henry W. Gillett opened the discussion of Dr. Stanley's paper. He was much in accord with him. He felt that it was a great mistake not to care for the disease in its early stages.

Dr. W. D. Tracy, too, had little to say except in commendation. Serumal deposits, he believed, came only after congestion of gum tissue, and pus only after pocket had been formed.

Dr. R. G. Hutchinson following in the discussion: "The deposits of calculus take place through bacterial deposits first which precipitate calculus." "Medication is out of the question; it is of little benefit."

Dr. L. C. LeRoy was the last to be called upon. The word pyorrhea, he thinks unfortunate, because it seems to establish the feeling that unless the presence of pus can be demonstrated there is no pyorrhea or dangerous condition, while in reality, most all above 25 years of age need specialists care.

He said there was two great weaknesses in the treatment of pyorrhea—one the instruments in general use. The operator procures instruments and then proceeds to adapt himself to their structural peculiarities.

Second, great weakness is—the man. If there had not been remarkably good men behind the guns, the instruments they worked with would not have made the record.

Two essentials are necessary in instrumentation. Of greatest importance is the removal of *all* adhesions. Most operators are able to remove all but that which is in direct contact with, and which is keeping up the destruction of the still existing peridental tissue—that which is at the deepest recess of the pyorrhetic pocket, overlapped by alveolar tissue in the deeper pockets. The reason why pyorrhetic cures are not universal is that the man or the instrument has failed to reach the base of the pocket.

The next most important thing is the making smooth of all instrumented surfaces. Polishing supra-gingivally with porte polisher, tapes and brushes was thought enough, but in the estimation of Dr. LeRoy, those surfaces could be left without that attention, but actual burnishing of the root surfaces to the bases of all pockets—sub-gingivally to prepare the root surface for the extremely vascular granular tissue formations is most necessary.

"Anybody can do the ordinary. That quality is not enough when extraordinary effort is necessary."

He spoke of fixed laws and the need of placing ones self in proper relationship to fixed principles to get results.

"I am convinced that the disease is constitutional." He asked: It is normal that there should be calculus in such quantities in the saliva? If it is due to faulty metabolism, then it is the effect of some other cause.

"Pyorrhea and bald heads, some of the prices we pay for the luxury of civilization."

"Prophylaxis by the patient is good in theory, but a failure in practice, because they cannot maintain cleanliness and that sustains contention that oral dyscrasia are but the effect, the cause being elsewhere."

"Perfect physiological type—immunes we call them. How many are immune because of perfect prophylactic care? What percentage remain so?"

Balance between anabolic and catabolic function is what makes for immunity.

"Will prophylaxis—or does instrumentation prevent the precipitation of lime salts again in excess?"

"In every department of science people are prone to forget that the effect is but the evolution of the cause and always commensurate with it."

Dr. Stanley, in closing the discussion of the paper, added very little. He was more than pleased at his reception.

Yours truly,

THE BOROUGHS.

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.]

Mixing Cement:—To prevent cement setting too quickly, use a bottle filled with cold water for mixing slab.—*A. M. Hardaway, Minot, N. Dakota.*

Cementing Bands and Crowns:—Dry the tooth, paint with shellac varnish before applying cement. This gives adhesion and should cement dissolve, shellac preserves the tooth and prevents decay under the band.—*J. H. Pearce, Peoria.*

Hemorrhage:—In order to promote clotting in a patient whose coagulation time is delayed by some pathologic state, 45 to 75 grains of calcium chlorid daily, for three or four days prior to the operation, is a good treatment.—*LeGrand M. Cox, St. Louis.*

Cleaning Trays:—Give trays a coat of sweet oil with woolen cloth dipped in oil. Put them in strong soapsuds, boil and wipe dry. Now polish with whiting by using a woolen cloth or fine leather. In this way you can keep your trays bright and clean and the plaster will not adhere to them.—*R. H. Daniels, Peoria.*

Wax Impression:—In taking a wax impression for an inlay, shape the wax like a wedge so that one end of it may be placed over the entire gingival wall before any pressure is exerted. This will insure a perfect impression of the gingival margin.—*O. De Forest Davis, Minneapolis.*

The Value of Records:—The accounts and records of a dental office I consider to be the real business side of dentistry. An important part of practice building is the keeping of such accounts and records in an accurate and intelligent manner. If not so kept they will lead to confusion, loss of time and patients.—*B. H. Biglow, Rockford.*

To Locate Root Canals:—To assist in locating the opening to a root canal which has been temporarily obliterated by the process of decay having entered the pulp chamber, moisten with alcohol and dry with warm air. The tooth structure turns white, but the entrance to the root canals is indicated by the small dark spots. This often saves time by cutting down the area to be explored.—*E. S. Best, Minneapolis.*

Impression Wax:—The wax impression has been discussed so freely in the journals that we could almost pass it, yet the ideas about heating and handling it are so varied that we must stop long enough to say that none but the surface of the wax should be really soft. The main body should be about as hard as the fingers will handle, with the outer surface softened quickly immediately before using and if possible be confined with some sort of matrix leaving, in case of fillings, at least a film of wax remaining over the margins. Most wax is too soft for accurate work, requiring too much cold to harden it. Yet some are so brittle and chill so quickly afterwards that perfect adaptation is almost out of the question and carving without reheating is next to impossible. A good guide is to choose one that will get quite hard in the mouth without chilling if given time, and for all work out of the mouth something not so hard is best as it is easier handled and can be chilled to suit. Brittleness in impression wax is always a menace, it should be hard but tough. In case of fillings there are some good features about taking an impression of cavities and working from a model, mainly though at the present time because in case of failure in casting, another can be made. Yet it looks as if when the right material for a model can be secured we would all come to it for inlays.—*C. N. Thompson, Chicago.*

Gangrene of the Pulp:—Gangrene of the pulp occurs in two forms, dry and moist. In both cases death of the pulp in part or in whole has occurred through one or more of many causes, which interfere with the circulation of the dental pulp. Examples, traumatism, rapid wedging or movement in regulation, passive hyperemia and pulpitis.

If the pulp dies under asceptic conditions and bacteria and moisture are excluded and the blood of the pulp is drained from the pulp tissue by the veins, dry gangrene is the result, leaving a shrivelled dry mass within the pulp chamber and canals. This tooth will lose its translucency, but will not be extensively discolored. There will be no response to tests for pulp vitality and the dentin is not sensitive to cutting and the bur chips are free from odor. On entering the pulp chamber, a dry condition will be found with the pulp in a shrivelled dry mass, if found at all.

The dry form of gangrene is rarely met with. It may especially be looked for in cases where attempts at mummyfication, with formalin, tannin and alum compounds have been made. In treating this form the special precaution is to confine the first treatment in the pulp chamber and retain with cement, as violent pericemental disturbance may arise if the canal contents become contaminated.

The canals may be cleansed under asceptic conditions by applying 5% formaldehyd solution or sodium dioxid and the roots filled immediately. However, great risk is attached to the immediate methods. A safer method is to treat at least once with formo-cresol (Buckley), then at the second sitting canals are cleaned under asceptic precaution and filled.—*M. L. Schmitz, Chicago.*

Suggestions in Bridge Work:—In doing bridge work it is a great satisfaction to be perfectly sure that when the bridge is completed the abutments will be in proper relation to each other, and will go to place in the mouth, and that the bite will be right. It is almost impossible, with a wax or modeling compound impression or bite, to be sure of a perfect result. Many times it is necessary to saw the bridge in two to correct the imperfections. The use of inlay abutments make it all the more difficult, as the inlay may have only two surfaces, and the outline in the wax impression is likely not to be sufficiently sharp to indicate the exact position of the inlay. Modeling compound or wax will drag and change shape, more or less, and usually leaves a constant feeling of uncertainty as to whether the bridge will go to place and articulate properly.

The one reliable material is plaster. With the abutments in place, a bulk of plaster can be placed between the teeth, the patient instructed to bite, and the impression and bite taken at once. When the plaster has set, with the finger holding the plaster toward the abutments, have the patient open his mouth; this will free the plaster of the opposing teeth. If there are decided undercuts or bulging teeth which would interfere with the removal of the plaster, strips of yellow wax can be warmed and modeled around the necks of the teeth. If the plaster fractures in removing, it will be in the median line, and after permitting the moisture to dry the two halves of the impression can be united by placing Sandarac varnish on the fractured surfaces and forcing them together. Sandarac varnish is also useful for fastening the abutments in the plaster impression.

Pour up both sides of the impression at once on an articulator in Brophy's investment, after thoroughly saturating the impression with water to facilitate separation. Brophy's investment sets sufficiently hard to insure the safe removal of the plaster without injury to the models. After placing in hot water the plaster can be chipped away with a small knife in a very short time, and you have perfect models, perfectly articulated, and the abutments are in proper place. No impression tray should be used, as it would interfere with the chipping away of the plaster from the model. An impression and bite of a bridge of any size can be taken in this way. The abutments should not be removed from the model. When the bridge teeth are waxed in place, cut the model from the articulator, trim and add to with more investment as desired.—*J. A. Heidbrink, Minneapolis.*

MEMORANDA.

NORTH DAKOTA DENTAL ASSOCIATION.

The sixth annual meeting of the North Dakota Dental Association will be held at Fargo, North Dakota, on May 16 and 17, 1911.

F. A. Bricker, Secretary, Fargo, N. D.

KENTUCKY STATE DENTAL ASSOCIATION.

The dates of the coming annual meeting of the Kentucky State Dental Association have been changed from May 25, 26, 27, 1911 to May 23, 24, 25, 1911.

W. M. Randall, Secretary.

TENNESSEE DENTAL ASSOCIATION.

The annual meeting of Tennessee Dental Association will be held in Nashville, May 23, 24 and 25, following State Dental Board meeting. A cordial invitation is extended to all ethical members of the dental profession.

Walter G. Hutchison, Cor. Secretary, Nashville, Tenn.

TEXAS STATE DENTAL ASSOCIATION.

The thirty-first annual meeting of the Texas State Dental Association will be held in San Antonio, May 11, 12 and 13. A cordial invitation is extended all ethical members of the profession.

J. G. Fife, Sec'y., Dallas, Tex.

MINNESOTA STATE DENTAL ASSOCIATION.

The twenty-eighth annual meeting of the Minnesota State Dental Association will convene in Masonic Temple, Minneapolis, June 9, 10, 1911.

A number of clinicians in addition to home talent will be present, and a manufacturers' exhibit is also being arranged.

The profession is cordially invited. Address inquiries or suggestions to

Benjamin Sandy, Sec'y. 827 Andrus Bldg., Minneapolis, Minn.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Wisconsin State Board of Dental Examiners, for the examination of applicants for license to practice dentistry in Wisconsin, will be held in Milwaukee, at the Dental Department of the Marquette University, corner 9th and Wells streets, beginning Monday, June 12, 1911, at 9 a. m.

All applications, together with the fee of $25.00 must be in the hands of the Secretary fifteen days before the examination.

For application blanks and general information, address

G. C. Marlow, Sec'y., Lancaster, Wis.

NATIONAL DENTAL ASSOCIATION CLINICS.

The clinic program for the meeting at Cleveland promises to be an unusually interesting and profitable one. Every effort is being put forth to secure the very best talent as clinicians in the profession.

It is our intention to make this clinic the most interesting and profitable one in the history of the National Association. We have at this early date (March 1st) secured men of national reputations to clinic on the following subjects: Oral Surgery, Prophylaxis, Orthodontia; we hope to arrange a Concerted Gold Filling Clinic in Cavities in Pearl Matrices—(by ten operators) under direction of Dr. Southwell, of Milwaukee; Progressive Gold and Porcelain Clinics, Gold Inlays, and many other demonstrations. Canada and Europe will be represented and we are making great efforts to have every state present their best clinicians. We solicit clinics from any member of state or district society and a most cordial invitation extended to our Canadian brethren.

Send in your names at once with title of clinic to any member of the committee, that we can have the program published in the journals, June issue.

D. O. M. Le Cron, Chairman, 501 Missouri Trust Bldg.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the state of Illinois will be held at the Chicago College of Dental Surgery, corner Harrison and Wood streets, Chicago, beginning Monday, June 5, 1911, at 9 a. m. "The following preliminary qualifications shall be required of candidates to entitle them to examination by this board for a license to practice dentistry in the state of Illinois: Graduates of a reputable dental or medical school or college, or dental department of a reputable university, who enter the school or college as freshmen on or after the school year, 1906-7, must have a minimum preliminary education of not less than graduation from an accredited high school or a certificate from the State Superintendent of Public Instruction, equivalent officer or deputy, acting within his proper or legal purisdiction, showing that the applicant had an education equal to that obtained in an accredited high school; which certificate shall be accepted in lieu of a high school diploma." Candidates will be furnished with proper blanks and such other information as is necessary, on application to the secretary. All applications must be filed with the secretary five (5) days prior to date of examination. The examination fee is twenty dollars ($20) with an additional fee of five dollars ($5) for a license. Address all communications to

T. A. Broadbent, Secretary, 705 Venetian Bldg.

AMERICAN MILLER MEMORIAL.

The committee appointed at the December, 1909, meeting of the Ohio State Dental Society, for the purpose of raising funds for an American memorial to perpetuate the memory of the late Dr. Willoughby D. Miller, desires to make the following report:

Honorary committees have been appointed in the several states, to solicit contributions by which their state may be represented in the fund. successful issue of this undertaking, to express the appreciation of American It is due to their hearty co-operation that the following report points to a dentists for the work of Dr. Miller. The amounts asked for from the several states is prorated according to the membership of the state societies; in some instances these amounts have been partial, while in others they have been slightly over subscribed. The committee deem it inadvisable to take steps toward the construction of this memorial until the fund, which will approximate $8,000 is fully subscribed and in the hope this condition will be brought about by Fall.

The following subscriptions are now in the hands of the treasurer, Dr. Weston A. Price, of Cleveland, Ohio, individual subscriptions while included in the following, will appear in the name of the donor in our final report in the journals:

Alabama State Dental Society, $25; Arkansas State Dental Society, $50; California State Dental Society, $10; Alameda County, Cal. Dental Society, $10; San Francisco Dental Society, $20; Sacramento County Dental Society, $10; Colorado Odontological of Colorado Springs, $25; Conn. State Dental Association, $50; Georgia Personal Subscriptions and State Dental Society, $35; Illinois State Society, $150; Illinois Component Societies, $216; Illinois Personal Subscriptions, $165; Indiana State Dental Society, $50; Eastern Indiana Dental Society, $25; Iowa State Dental Society, $200; Kansas Personal and State Society, $134.50; Kentucky State, Local and Personal, $105; Montana State Dental Society, $15; Nebraska Personal and State Society, $100; New Hampshire State Dental Society, $25; New York Odontological, $25; New York Institute of Stomatology, $50; South Carolina State Dental Society, $25; North Dakota State Dental Society, $50; South Dakota State Dental Society, $15; Oregon State Dental Society, $50; Pennsylvania State Dental Society, $200; Lebanon Valley Dental Society, Pa., $10; Tennessee State Dental Society, $50; Texas State Dental Society, $50; Utah, Salt Lake City Aux. Delta Sigma Delta, $14; Ohio State Dental Society, $1,000; Cincinnati Odontographic, $100; Columbus Dental Society, $100; Northern Ohio Dental Society, $200; Va. State Dental Society, $50; W. Va. State Dental Society, $25; Washington State Dental Society, $50; Wyoming State Dental Society, $10. Total, $3,494.50.

Expenses of our committee including printing, stationery, postage and stenographic work to date amounting to $79.90 has been taken care of by the Ohio State Dental Society.

In addition to the above the state societies of Massachusetts and Missouri have each subscribed $100, and Mississippi, $50, while several other states have subscribed amounts not definitely reported at this date. Personal subscriptions from Columbus dentists will approximate $500.

Other professions have established memorials to their distinguished dead; dentistry has done it before, and we appeal to your spirit of loyalty and patriotism to aid in honoring this American whose life was one of untiring devotion to the scientific advancement of our profession.

Edward C. Mills, Chairman, 16 S. Third St., Columbus, O.
J. R. Callahan, 25 Garfield Place, Cincinnati, O.
S. D. Ruggles, Portsmouth, O.

ILLINOIS STATE DENTAL SOCIETY FORTY-SEVENTH ANNUAL MEETING, PEORIA, MAY 9-12, 1911.

The various committees arranging the program for the next meeting of the Illinois State Dental Society fully expect to have one of the best meetings in its history and every indication now points to an attendance exceeding that of last year. Peoria is a very central point and facilities of every sort are admirable for meeting purposes. Of the immense amount of preparation required for meetings of the society since it has become so large, enough has now been done to make it practically a certainty that from all viewpoints the coming meeting will surpass any previous one.

Of the list of papers and lectures to be submitted for discussion, definite announcement can now be made of the following:

The President's Address, by Dr. Don M. Gallie, will deal with the duty of the society toward the state at large and will submit conclusions drawn from a vast amount of data gathered from over the entire country, and will be so unusually instructive and interesting, that every dentist planning attendance should be on hand at its presentation at the opening session May 9.

Especially noteworthy will be a paper by Dr. G. V. Black, on "The Formation of Salivary Calculus, and Other Similar Concretions," illustrated with stereoptican, presenting the result of original investigations by Dr. Black during the past two years, practically entirely new and of proven great importance in connection with preventative treatment of infections of the peridental membrane. Front seats upon this occasion will be at a premium and this one paper will repay any dental practitioner for making the trip from the remotest section of the state.

The society had left it a legacy in the form of a partially prepared paper by the late and beloved Dr. C. B. Rohland, of Alton, entitled, "A Few Random Thoughts, or Why I Studied Dentistry," to be read by Dr. C. N. Johnson of Chicago. This feature will be extremely interesting and should attract every member of the society, especially from Southern Illinois, where Dr. Rohland was held in such high esteem by his confreres. Let the many old friends of Dr. Rohland all be present and enjoy and discuss this, his last literary work.

There is a constantly increasing demand for orthodontia services everywhere, and the "Symposium on Orthodontia" should be particularly attractive to every practitioner, treated as follows:

"The Psychological Effect of Orthodontia," Dr. M. R. Harned, of Rockford; "Orthodontia in the Smaller Cities," Dr. J. K. Conroy, of Belleville; "Regulation," Dr. Grafton Munroe, of Springfield; "Retaining Appliances," Dr. T. L. Grisamore, of Chicago.

The lecture by W. A. Evans, Health Commissioner of Chicago, as announced in the last issue, will be one of the most important numbers of the program. Arrangements are being considered looking toward making a special feature of this lecture.

Dr. Sidney Knowles, of Chicago, will present a paper, "The Present Status of the Inlay," which will treat this most absorbing topic in an up-to-date manner that with the discussion should provide a post graduate course on the subject in tabule form permitting one to revise and bring up to the best practice, so far as known, one's present methods.

Dr. E. T. Evans, of Decatur, will submit a paper, "Thorough and Honest Dentistry—What a Man Should Be in His Own Community." Dr. Evans as a very concise writer and the program committee can vouch for a highly interesting paper from his pen.

Dr. J. L. Greene, of Kankakee, member of the State Board of Control, will read a paper, "Care of the Teeth in the State Institutions," which will present valuable information.

Other very important papers are arranged for, the subjects of which will be announced later. All ethical practitioners are most earnestly solicited to be present. Hotel facilities are ample and Peoria presents many attractive points of interest. The local committee is arranging to provide entertainment that will make this meeting especially memorable in this respect.

THE

DENTAL REVIEW.

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THE FIELD OF THE COMPRESSED AIR TEST.

BY CHARLES SOUTHWELL, D. D. S., MILWAUKEE.

My subject is: The field of the Compressed Air Test having reference, mainly, on this occasion, to the adaptation of gold and the contraction of amalgam.

I am very deeply appreciative of the honor of this evening and trust that, what I have to offer may be ultimately productive of good results. I beg also to add that he must be wholly lacking in responsiveness who could not recognize what it means to appear before this busy, influential organization. I bring to you tonight the results of fifty readings of twenty-six amalgam fillings and ten readings of ten gold fillings, done by members of this society. The test of six gold inlays. One of which was made by Dr. Roach and five by Dr. Dittmar. A score in percentages on the above mentioned gold fillings that were placed in pearl matrices, by ten operators, in their own offices. A report on nine amalgam fillings done by myself.

I also present the complete testing apparatus in full operation together with a display of the various operations. The latter will be passed among you during the evening.

I shall ask you, to go with me, through my conception, of the field of the compressed air test in its application to all filling materials, especially amalgam and packed gold. The field has present limitations and there are some high and some low spots. On some of its borders, we may, in time, possibly, discover some collateral fields that may prove worth while and while I have, very naturally, given

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(Read before the Chicago Dental Society, January 17, 1911.)

the subject such close attention as my time would permit, I am not sure that I know its limitations. I feel, however, that if I succeed in nothing more I offer much in describing a very simple, inexpensive and reliable apparatus for the use of the individual dentist that appears to me to have a distinct field of usefulness as a check on himself, his methods and his technique with all filling materials but more especially in the testing of the, too frequently, maligned and very important filling material commonly called amalgam.

I will now briefly sketch the field of the test. Later on I will speak of each feature in turn. I mention its application to amalgam first for the reason that, so far as the work has progressed, the test seems to have its happiest application in the direction of this material. I next mention fillings made of packed gold, but in so doing I feel that I must ask your attention to a discrimination which I hope may not appear over nice. Alloy that is amalgamated ready for use, has one serious, inherent, fault. It will shrink. It will shrink whether placed in the cavity or not. Gold on the other hand is without this basic or inherent fault. It will remain the same, if it should stand unused for a thousand years. Therefore, gentlemen when, for convenience, I mention fillings of packed gold, as coming next within the field of this test, I wish to be understood that it stands very largely for methods. To sum up this distinction I may say that, with amalgam, it is a question of material and technique with the dishonors about equally divided. With gold, it is not a test of the material but more, if not quite altogether, a test of the method —and the operator.

I mention gutta percha third, not only because of its importance as a filling material, but because it is the only other filling material clearly amenable to the test.

I have not mentioned gold inlays, porcelain inlays, cement fillings or enamel fillings earlier for the reason that they do not seem to come as clearly and distinctly within the field. I shall touch upon the inlay later but adherence to the subject, as it appeals to me, does not seem to permit the introduction of the inlays or cements much more than the introduction of cement lined gold or cement lined amalgam fillings.

To make myself clear on this point, the opinion is here offered, that if air could be forced through at the margins of an inlay it would emit from the joint between the cement and matrix and not between the inlay and the cement. In other words a test of an inlay by air pressure, from beneath or above, is essentially and in fact a test of the cement, and it would seem to be a reflection against the integrity of any cement that would not withstand air pressure especially when driven to place and held under pressure until it sets. Stated in another form it would seem that a gold or porcelain inlay should not leak more readily than a cement filling in the center of which a very small shot of gold had been pressed. To the friends of the inlay I beg to state that I am now defining the field of the test.

The testing of cements and enamels may in time prove to be among the collateral fields briefly suggested and as brought out by some very discomfitting experiences with gold inlays, which I will leave to the pluck and discretion of Dr. Dittmar. I sincerely regret that I have not had the time to take up with the matter of cements—especially so in view of the fact that the future of every inlay rests, very largely, with them. In closing the field it occurs to me that this test may be very satisfactorily applied to root fillings.

Speaking first of the apparatus I beg to say that the entire scheme is very simple indeed, being nothing more than the exposure, to pressure, of a portion of the floor of the filling. And that any faulty technique in the matter of marginal work, especially, is revealed by a very convincing and spectacular ebullition of air shown by immersing the specimen in clear water. For a satisfactory working out of the test it is necesary to have a pump, a reservoir, a gauge or gauges, one or more connections and a receptacle of clear water.

The pump may be a simple hand or foot pump or it may be a power affair. Those having an independent air apparatus may tap the system at any convenient point. If one's air is supplied by the building in which he practices, in other words if it be not independent it would be necessary to introduce a pressure regulator in order to obtain the desired gradation or rise of pressure.

For extended investigations the reservoir should be not less than a few gallons in capacity for the reason that even a slight leakage would quickly reduce the pressure on a very small tank. For instance, if there be no tank, a few pounds may be applied directly to a matrix with one stroke of a hand pump but the pressure is almost immediately lost because it lacks volume. And furthermore, it is impossible, without a reasonably large tank, to make a satisfactory record or readings in ounces as has been proven necessary with some amalgams. As to the gauge it is quite impossible to procure one that registers ounces and to also register as high as 60 pounds, at least not at an ordinary price.

As stated, some amalgams have shown leakage far below one pound of pressure and very close differentiation would require a mercury gauge of the U tube class. For a higher registration than five pounds an accurate metal gauge is necessary. Both may be used on the same apparatus by having a key beneath the U tube for the purpose of cutting out the U tube after the pressure exceeds its capacity.

From my experience in this work and for the guidance of those who may look into the subject I offer the information that the metal gauges purchasable at ordinary prices are notoriously unreliable for low pressure or ounce readings, and that one will do best by gaining the co-operation of any, well informed, local boiler inspector.

The U tube is not absolutely necessary for investigations by individual dentists if they are for his personal purposes. All that he need do will be to discard those amalgams that show leakage before pressure begins to register on any reasonably accurate metal gauge, but the caution is here interposed however, that before such rejections he make quite certain that the technique is without censure.

Speaking next of the connections, it should be unnecessary to counsel against rubber tubing. In almost every community it is possible to purchase hollow brass wire of firms that install gasoline lighting systems. As to the number of connections, I may state that a single connection and a single matrix will be found immediately unsatisfactory. One who takes up with the investigation of amalgam will find little encouragement with single tests for the reason that they are haphazard and that acceptable conclusions are best had where several matrices are filled, tested and retested with strict attention to uniformity of conditions and regular, concerted readings.

Very clear spring water will serve ordinary purposes very well. The water bowl should be low and clear in order that the ebullitions may be noted from the side as well as from the top. The bowl should be selected first and the connection ring made to conform. A single connection like the one on the small apparatus may be bent so as to be immersed in an ordinary drinking glass. Speaking next of the matrices, I may repeat that the entire scheme is based upon the exposure, to pressure, of a portion of the floor of the filling, and a description of the make up of the steel matrix should be sufficiently illustrative. A hole is drilled through the center of a cube made from 1/2″ bessemer tool steel. One end of the hole is threaded about half way. At the other end the cavity is drilled by a counter bore that has a pilot and stop attached. The pilot and stop are necessary to insure accuracy.

The depth of the cavity is .050. The diameter of the entire floor of the cavity is .214. The diameter of the surface exposed to the air is .140, thus leaving a floor margin of .037, on all sides of the center hole. The tap for the thread is known as eight-forty.

When the filling or inlay is being made, the hole in the center of the floor is closed by a flat ended screw that is turned up until it is even with the floor,—thus completing or restoring the floor. This screw is removed when the matrix is about to be engaged on the testing ring, leaving exposed, to the pressure, that portion of the filling represented by the flat ended screw. Should this test of filling materials prove acceptable I have, at this point, to offer the suggestion, that an effort be made to standardize the matrices to the end that all experiments, wherever conducted, will have the same surface of filling material exposed to the pressure.

Speaking of the matrix material, from which the matrices have been made, I have found great difficulty in attempting to avoid the use of metal. It seemed necessary to do this, especially for fillings of packed gold, in order to introduce some check on the abnormal blows permitted by steel walls and margins to the end that unwarranted or normally impossible specific gravities, be kept within bounds. I felt this to be desirable if the work was to grow, until it should become a factor in didactic work in colleges. In my opinion it would be unwise to apply students to the filling of cavities in steel if a more normal matrix material could be found, and I fancy that no one thing could be more instructive or provocative of fruitful discussion among students than to set a dozen chosen seniors to the filling of identically the same cavity in a pearl matrix.

The word Eureka would have inadequately expressed my feelings when I first adopted the bovine incisors. But upon quite an extended experience, that includes two concerted clinics, before dental societies I found a serious hindrance in the fact that, upon exposure to air, for even a short time, these teeth were inclined to check and that before and after the introduction of the fillings it was quite an exaction to keep the teeth constantly immersed in water. On the other hand, the comparative cheapness and more especially the cleanliness of salt water pearl matrices, together with no very serious disappointment, on the score of moisture, dryness, heat or cold, led me to adopt this material in the correspondence Clinic held during November last. So far as I have been able to determine, this material offers a very satisfactory matrix for fillings of packed gold.

One operator made two gold inlays (for the same pearl matrix) that became loose while being finished. He ascribed this to the shape of the cavity (as prepared for each other inlay operator) and to, what he described as a very material response of the pearl to thermal changes resulting in expansion and contraction. He quietly withdrew from the clinic. Another operator offered it as his opinion that the pearl "absorbs water or drys out and changes shape on that account." The latter had reference to the cavities sent out for amalgam. If either of these contentions prove true, or are held as true I should find it somewhat disconcerting. To the end that we may progress and in the same kindly spirit, in which these opinions were offered I would take it as a courtesy, if, during the discussion, the other operators would add their views on the fitness of pearl as a matrix material.

In reply to these temperate criticisms of pearl matrices, I beg to state that six out of the ten gold fillings and one gold inlay placed in the first set of pearl matrices sent out, showed no leakage at 60 pounds on November 9, 1910. They were again tested on December 3, with the same result, notwithstanding the fact that they had been in and out of the water several times. Asking you to bear in mind that my efforts to date have been somewhat speculative, I beg to state as a finding in the recent tests, that the steel matrix is, ordinarily, more dependable and the use of pearl or bovine teeth best indicated for fillings of packed gold when it is desirable to introduce a more normal condition of walls and margins.

Before closing the subject of the matrix material, I beg to state that in the pearl matrix and especially in the steel matrix, as I have formed them, it is possible to force the filling out with the screw without injuring the matrix. This will prove of advantage where investigations are extended to include the taking of the specific gravity of gold fillings or the testing of the edge strength of amalgams. An additional and valuable feature of the steel matrices. as offered in this work, lies in the fact that they are very inexpensive in comparison with the separable steel cavity blocks.

It seems in order that I should next take up with the matter of providing identical conditions, and from a broad viewpoint it would also seem that this provision of identical conditions should need no particular endorsement before this body.

It should be apparent and I take it that it is apparent, that we could never arrive at acceptable conclusions in any comparative test, unless exactly the same conditions be provided whether it be a deal at whist, a foot race, or the filling of a matrix.

In the preparation for the two concerted clinics prior to and also the one during November last, the cavities were all made by machinery, with the same counterbore, to exactly the same depth. This means that the cavities were necessarily made by a revolving tool and therefore round. And furthermore, that any change in the shape of these cavities, to make them conform in shape to those usually found in the mouth, would, of necessity, require hand work with the dental engine, with the almost absolute certainty of nullifying the very thing striven for, namely: the provision of identical conditions.

All of the cavities, both for gold and amalgam fillings were round and flat bottomed, not unlike an inverted cover of a baking powder can and absolutely without undercut. In the cavities for gold, four small starting pits were drilled at equidistant points in the floor near the angle with the wall, otherwise, the gold would hardly have been more controllable than a skillet on an icy stoop.

This provision for the locking of the gold during the upbuilding was imperative. It would not do to permit any operator to change or improve the cavity in any manner whatsoever and for that reason only, the starting pits were introduced. I have not used a starting pit for more than thirty years and yet it seemed to me as though, four would not only meet the most captious technique but would in no wise alter the identical conditions, especially in view of the fact that each operator had the same chore to do. The cavities for inlays were slightly countersunk but otherwise were left as near like those for gold and amalgam as the requirements would permit. I feel constrained to offer these explanations regarding the cavity preparation, to relieve the mind of any one, of the notion that they represent anything but the exigencies of the work. I never saw cavities like them, in the human mouth and never expect to. They merely represent my best efforts in the establishment of identical conditions, the absence of which would permit the entrance of very conflicting and unavailing contentions or excuses.

This provision of cavities that are practically identical, as to cubical contents, greatly simplifies the question of comparative density as arrived at in Springfield through the very exacting task of ascertaining the actual specific gravities. Granting the cavities to be practically the same, assuming in other words, that the fillings have an equal bulk, all that need be done to determine the comparative density, would be to force the fillings out and take the actual weight of each. This compared to the finding of the specific gravity, is a very simple matter and I am inclined to the opinion that it would be reasonably sufficient for the purpose. All that would be lacking would be the absence of the knowledge of the actual specific gravities, should comparisons with other operations in cavities of a different size be desired.

If you will bear in mind that, in the above, I assume that the bulk of each filling is the same, it follows that the finished filling that weighs the most, would have the greatest density.

Before going into details on the gold inlay, gold fillings and amalgam fillings in the correspondence clinic, I desire to state that I do not appear before you with anything mature or final, regarding the filling materials themselves. These operations were introduced by way of illustration and if the idea will take immediate root, that the work thus far, is more tentative than otherwise, I am sure we will arrive all the more quickly and cordially in determining the exact value of the test.

This work, especially that of the amalgams, has partaken of the nature of a trial. I do not offer a verdict nor can I inflict you with the recital of the complete testimony. I merely bring to you such data as seems pertinent and in offering these findings, on the several fillings and inlays, so kindly submitted by the operators, I believe it best to step aside from the province of my paper and begin with a few explanations and extenuations.

I have done the work in very narrow quarters in one part of my office and through the fact that the preparation for and the conducting of the experiments and tests have been undertaken only now and then and for brief spells, usually my luncheon hour, the continuity of the work has always been seriously interfered with. In fact, this interference has been the only regular or consistent feature of the work, and I should indeed regret if any of the findings that I will submit should be accepted with any great degree of finality. I set out to have the amalgams placed in each set of matrices on the same day and planned to make the tests concertedly, with some degree of regularity on a given date but owing to the pressing engagements, a few of the operators were tardy and also submitted their work without data.

This compelled me to depart from my schedule, so much so, that some of the amalgams may have been tested at a disadvantage as to age of setting. In other words I am more certain of the fact that the amalgam tests are unscientific than of any other fact offered.

I may also state that these tests are practically of amalgams bought in the open market. I have neither the time nor the inclination to approach manufacturers for samples and the procuring of samples in the open market is in consonance, for instance, with the attitude of the government in all tests made under the pure food laws. The recent correspondence clinic, that under the able management of Dr. Dittmar during the month of November last year,—which was enthusiastically entered into by some of your members,—has brought to light some unlooked for phases of the application of this test. This clinic was undertaken as has been stated, for the especial purpose of stimulating interest in this meeting, and I felt and was led to believe that the inclusion of the gold inlay would be interesting, timely and fruitful.

Before the clinic was fully under way I became possessed of the belief, that no inlay, whether of gold or porcelain, would leak if properly cemented in place. I also felt that the discussion might digress and I began to regret the introduction of the inlay. Subsequent devil-up-ments (giving inadequate expressions to Dr. Dittmar's feelings) have, however, revealed the fact, that, after all, the inlay is more within the field than I at first supposed as may be seen from the report of the inlay test later on.

And now to the tests themselves with the hope that I have not wearied you.

Beginning with amalgam, I beg to state that I have been at a loss to know just how to make the report. Especial pains have been taken to safeguard every phase of its bearing. I have endeavored to keep in view the fact that this society should not become an advertising agency for any amalagms and this would have been the case if the report had been limited to the first set of matrices and presumably published.

To make this clear it is but necessary to state that one amalgam, in the first set of matrices, perfectly withstood the full 60 pounds without any leakage whatever. The next best specimen showed a leakage at two pounds with all of the others reasonably close at hand. One, however, showed leakage at about lung pressure. It is at once apparent that a complete report on this particular set of matrices including the naming of these amalgams, would have been of especial advantage to the maker of the one amalgam that stood so high in this single competition. This remarkable showing would have been manifestly unfair to the other manufacturers and to this society as the subsequent tests revealed. And right here enters the difficulty of making a succinct report. If I avoid naming the amalgams (and I feel that I must), and include only the names of the operators, I drop a clue as to the identity of the amalgams that best withstood the test; but I see no way of avoiding it unless I inflict you with a very dry uninteresting recital that would have no weight other than a general endorsement.

In making this report I will go so far as to assume that this is a local, family matter and that the gentlemen who so kindly entered the clinic are entitled to know of their work. This will be my excuse for the free use of the names of the operators. I see no other way of getting at the kernel. For the amalgam I sent out three separate sets of matrices. The first two were of pearl and the third of steel. With the first, the request was made that each operator use his favorite amalgam and that he adhere as closely as possible to his every day technique. The second set of matrices was issued partly because of the very startling variation in the leakage of the first set of amalgam fillings, and again with the especial request that the same amalgam and the same technique be employed.

The third set of matrices issued were of steel to meet an implied criticism of the fitness of pearl as a matrix material. This was also accompanied by the same request as to the amalgam and technique. If the requests were heeded and I have every reason to believe that they were, the amalgam of each operator has been tested three times, (with several readings), and I am very pleased to be able to report a reasonable consistency. Those of the first that held well, continued to do so in the next two sets. Those amalgams that showed excessive leakage in the first set of matrices, continued to show up poorly in the second and third.

The fact that those showing the least leakage were not first in each set, or per contra, that those showing the most leakage were not always lowest I am inclined to ascribe, in part, to an unconscious and unavoidable change in technique.

The consistency, which I hope to later make clear, with which each amalgam operator has held his place is in support of the dependability of this test.

In the following report on the amalgams the fillings were six days old when first tested.

*Dr. A———'s amalgam in the first pearl matrix began to leak at one point at 4 ounces. This increased in severity and number of places until leakage of the entire margin was pronounced at 30 pounds.

That in the second pearl matrix began at three places at one pound, with the entire margin responding shortly thereafter. At 8 pounds the entire margin was violent.

In the steel matrix the leakage did not begin to show before 15 pounds, with the entire margin going at 40 pounds.

Subsequent tests of the latter filling, made two and three weeks later, showed a remarkable improvement, in the fact that there were only eight points of leakage at 60 lbs.

Dr. B———s' amalgam in the first pearl matrix showed no leakage up to 60 lbs., being the best specimen in all of the pearl matrices submitted. His second amalgam, also in pearl, began to leak at one point at 4 lbs., at 5 points at 10 lbs., and at 10 points at 30 lbs. Four separate readings of his amalgam in the steel matrix proved to be a very substantial endorsement of those placed in the pearl matrices. These separate readings of the same filling dis-

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* [On account of the tentative character of the amalgam operations, it has been deemed best to omit the names of the operators.]

appointed however, in the fact that they did not harmonize. The first readings showed two leakages at 2 1/2 lbs. and eight leakages at 11 lbs., with none of the usual increase in violence. The other readings, about a fortnight later, revealed no leakage up to 20 lbs., and at only four points at about 40 lbs.

There may be something significant or at least interesting in the fact, that the eight leakages at 11 lbs. with the amalgam one week old, dropped to only four leakages at 20 lbs., when the amalgam was three weeks old.

Dr. C———'s first amalgam, in pearl, began to leak at two places at one lb. with the entire margin quite busy at two lbs., and very violent at 10 lbs. His second amalgam, also in pearl, did not do quite as well. One leak showed up at 7 ounces, while at 1 lb. there were 9 leakages, four of which were through the amalgam. At 8 lbs. the entire margin was unreadable.

Four readings were made of the amalgam that he placed in the steel matrix on November 22d. The first reading, November 28, showed three leakages at 11 ounces, one being through the amalgam. This increased to nine leakages at 1 lb., with the entire margin quite busy at 2 1/2 lbs.

The subsequent readings one, two and three weeks later proved advantageous however. The one leak through the amalgam closed entirely and the violent stage changed from 8 lbs. at the first reading to 20 lbs. in the last reading.

As I go through these recitals it may be noticed that there is an even improvement in the leakage of those that had later readings, suggesting the fact that the fit of the filling improves with time. As to how long the fitness continues to improve I do not offer an opinion.

Dr. D———'s amalgam in the first pearl matrix leaked at two points at one pound. This gradually increased until one-half of the margin was going at four pounds. At 50 pounds about one-half of the margin was violent. The second pearl matrix was not submitted.

At this time Dr. D—— expressed misgivings as to the fitness of pearl as a matrix material for amalgam. Within a few days I issued steel matrices to all of the operators. When Dr. D—— made returns he was sufficiently interested to also submit a steel matrix of his own.

His amalgam in my steel matrix did not leak up to fifty pounds and then only at two places. This was confirmed by a second reading a few days later.

In the matrix devised by himself, presumably of the same depth and without undercuts, the filling did not do as well. This began to leak at five places at ten pounds. Seven at fifteen pounds. Nine at twenty pounds with the entire margin going very soon thereafter. If the same amalgam and the same technique were used in both of these matrices, I will leave it to this audience to explain the elusiveness of amalgam. It is beyond me.

Dr. E——'s amalgam in the first pearl matrix showed one leakage at one pound, three at two pounds, four at four pounds, five at ten pounds, six at fifteen pounds, ten at twenty-five pounds with the entire margin going at thirty pounds.

That in the second pearl was better. The first leakage occurred at eight pounds, two at fifteen pounds, three at twenty pounds, six at twenty-five pounds and not very violent after twenty-five pounds.

That in the steel matrix was much better. Three readings of this filling made a very consistent showing with the first leak at 4 lbs., 4 at 35 lbs. with no increase up to 60 lbs.

Dr. F———'s amalgam in the first pearl matrix began to leak at 4 points at 1 lb., 10 points at 10 lbs. with the entire margin pronounced at 30 lbs.

That in the second pearl matrix showed a marked improvement, in that it had but 1 leak at 3 lbs., 2 at 15 lbs., 3 at 30 lbs. and 5 at 50 lbs. The three readings of Dr. F———'s amalgam in the steel matrix made one, two and three weeks apart, upheld the excellent showing of his amalgam with marked emphasis on the interesting fact that the leakage decreased with each reading.

The first reading of the amalgam in the steel matrix showed the first leakage at 3 lbs., while the last reading revealed the first leakage at 10 lbs. with a decrease also in the number of places.

Dr. G——— submitted but one amalgam filling, that in the first pearl matrix sent out. This showed leakage at one place at 1 lb., 4 at 1½ lbs., 6 at 4 lbs., with 2/3 of the margin going at 10 lbs. Leakage of the entire margin was pronounced at 30 lbs.

Dr. I——'s amalgam in the first pearl matrix showed one leak at 4 oz., 10 at 7 oz., 50 at 1 lb.—violent at 4 lbs. At 25 lbs. this filling blew out bodily with sufficient force to hit the ceiling. His second amalgam, in the pearl matrix, showed marked improvement in the fact that it did not begin to leak until 2 lbs. pressure had been applied. Two leaks at three lbs., 5 leaks at 4 lbs., 6 at 6 lbs., 8 at 8 lbs. Entire margin unreadable at 15 lbs. His amalgam in the steel matrix was tested twice with about the same showing each time and with a slight improvement over that in the pearl matrix. The first leakage occurred at 1 1/2 lbs. with the entire margin pronounced at 8 lbs.

Dr. J———'s amalgam in the first pearl matrix began with four leakages at 1 lb. Ten at 4 lbs., with the entire margin busy at 10 lbs. That in the second pearl matrix could be set down in almost the same figures.

His amalgam in the steel matrix showed quite an improvement in the fact that the first leakage in the first reading was at 4 lbs. In the second reading the first leakage did not occur until 15 lbs. were registered again showing the reduction of the leakage with more age to the filling. This reduction in the leakage is also shown in the fact, that there were ten points of leakages in the first reading at 60 lbs. and only seven points at 60 lbs. in the second reading. To sum up the above recital, briefly, the record discloses the fact that one operator submitted three amalgam fillings that did not leak before 2½ lbs., that none submitted by five other operators began to leak before 1 lb., and that those of three other operators carried ounce rates in each instance.

The record very plainly reveals the following: That the subsequent readings of those in the steel matrices revealed a remarkably consistent improvement suggesting very pointedly that amalgam does not fully age in a few days. That the price of the amalgam does not necessarily suggest a quality in keeping with the price. That the steel seems to be a better matrix for amalgam. That but one operator weighed the alloy and mercury. That the technique could have all to do with the comparative success or failure. This latter statement is based upon the fact that one alloy was used by three operators with a poor showing at the hands of one operator and very good in the other two. That a decided beveling of the margin of the steel matrices will supply a very satisfactory means of determining the edge strength. That the findings of amalgams, under this test, suggest a very carefully conducted investigation by a duly appointed commission. That such an investigation is timely, I need only remind you of the rapidly growing number of the poor and middle class in this country who cannot afford gold in any form for the preservation of molars and bicuspids.

Great good could be accomplished, if by some means, including the air test, the dental profession through society work and as individuals could be in a position to clearly and quickly differentiate between the vast number of amalgams now in use, and rise above the present state of affairs wherein we seem to be lamentably dependent on the various makers of amalgams.

The effect of a dignified and painstaking effort of this character through the stimulating of the makers of amalgam is not the least or the only benefit to follow. If the individual dentist would contrive or adopt the simplest form of the air test and carry on a series of personal experiments he would find that the technique has much if not all to do with the success of any good amalagm.

Although the following may seem aside from the scope of the paper, it may be reasonably pertinent at this time. During this work and at a time when my enthusiasm for amalgam was at high tide I took a large magnet to a dental depot and passed it through samples of two amalgams, well known in the west at least, and found in each a very perceptible showing of very fine steel fuzz and a few filings. The amount of each sample was about a half teaspoonful.

It is next in order that I should submit some of the testimony in the matter of the gold fillings in pearl matrices by the operators in the correspondence clinic already referred to. I beg to state that the very important feature of specific gravity was omitted for the reason that the possibility of breaking the matrices would have discouraged the exhibit of these operations before you tonight. These gold operations are offered as a test of the combination of speed, plus accuracy, plus adaptation. An operator, in gaining speed, may lose on margins and adaptation or he may go slow, lose on the question of time and yet gain in the condition of margins and in adaptation, but the telling thing is a favorable showing on each of these points in the same operation. This is well illustrated in the gold filling of Dr. Crouse, who tied with Dr. Cormany for first place in speed. This filling, had I been sole judge, would have also stood first in perfection of margins, yet it began to leak at one point through the gold and at one point in the margin at 10 and 12 lbs.

respectively. Not seriously. Not enough to really condemn his work. In fact, I am not sure but that the filling, if in the mouth, would last quite as well, as one that did not leak. That is hardlly the point however.

This is more to the point. Any operator that can fill a cavity in a friable matrix in quick time; make a filling with perfect margins and one that does not leak at 60 lbs. and can, apparently, repeat this with reasonable consistency in his daily practice with comparatively less fatigue to himself, patient and assistant, if he can do these things it is temperate to observe that he has something to be copied. I anticipate that criticism may be offered on the introduction of time in these operations in reply to which I call attention to the fact that everything in this rushing age is scheduled.

Time in dental operations is a factor, even beyond my statements in the November Review. Time is everything to the busy man in every calling. The dentist is making time, all the time, or he is a poor business man and it is for this very reason that many errors creep in, especially if his method be laborious. And I again. in substance, repeat that any expedient that will save time, conserve physical strength and lessen the mental strain, is a matter for serious consideration. I agree that time should not be the sole controlling factor and that an operator should perform his services correctly, but we are on earth gentlemen with the bills to meet. It must indeed be a beatific state wherein one may practice this calling of ours without regard to time, but this demands that one should have a clientele that is not only able but *willing* to compensate him for all of the time he should devote in order to perfectly guard against discrepancies. Not only that, but, in addition, the patient should be able to endure the longer sitting without fret or censure. I have seen operators, at clinics, pour out their very life's blood in laboriously doing a beautiful restoration. That is all very well where there is no rent to pay. They have all day before them—and occasionally take it.

I have heard men on the floor grow tenderly sentimental over the duty of the dentist to his patient with the effect of spurring many in the audience to better things but oh! how different the homecoming when these ideals—which represent all that is best in our professional life—are up against the manifold exigencies of the day's work, with the next appointment crowding, a backache coming on, the patient fretting or the daylight fading—or, likely as not, a low fee in prospect.

It is at such times that discrepancies enter. Why? Largely because of the excessive labor. Under such circumstances, there enters a lack of integrity in the work which, in time, becomes habitual. The gold is bridged here and there, margins and surfaces are neglected resulting in the average gold filling to today which, in my opinion, based upon general observation and these tests would leak at several points of the margin and very likely through the gold itself at less than one half pound pressure. That is my opinion of the average gold filling. Question it as you will. I have no offer of proof. The patient is not at fault, neither is the tooth or the gold. *The fault lies between the operator and his method.*

To give this interjection a logical place in this paper, I beg to say that if an operator cannot fill one of these pearl matrices perfectly as to margins, surface and leakage in twenty-five to thirty minutes and repeat the performance with reasonable frequency without particular physical stress—(the whole statement hinges on the latter), he is imposing on himself. If he keeps up the stress in his daily practice, he shortens his own life. If he does not keep up the stress and falls for a quick glossing technique he shortens the life of his gold operations.

An operator who does not or cannot expeditiously do creditable gold work must know exactly wherein he fails, but if he does not a very few earnest essayes with these pearl matrices should prove illuminative.

The following is from the report of Drs. C. L. Babcock and Carl B. Case on the gold fillings:

			Time.			
Crouse	(Hand Mallet)	20	minutes,	percentage	on time,	100
Cormany	(Bonwill Mech)	20	"	"	"	100
Peck	(Hand Mallet)	22½	"	"	"	92½
Southwell	(Bonwill Mech)	28	"	"	"	76
Gallie	(Steel Mallet)	30½	"	"	"	68½
Allen	(S.S.W. Mech)	35	"	"	"	55
Orr	(Bonwill Mech)	35	"	"	"	55
Harper	(Automatic)	35	"	"	"	55

Dittmar	(Hand Mallet)	36	”	”	”	52
Coolidge	(Wood Mallet)	45	”	”	”	25

This percentage was arrived at by deducting three points for every minute more than that taken by the speediest operator as per the rules governing the concerted clinic in Springfield.

Margins.

Allen, 100; Crouse, 100; Southwell, 100; Coolidge, 98; Cormany, 98; Dittmar, 98; Peck, 98; Gallie, 96; Orr, 95; Harper, 90.

Leakage.

Allen, 100; Cormany, 100; Dittmar, 100; Gallie, 100; Harper, 100; Southwell, 100; Peck, 95; Coolidge, 90; Orr, 78; Crouse, 75.

Five points were deducted from 100 for every difference of 10 lbs. or major fraction thereof.

Out of a possible three hundred the relative standing of the operators on the gold fillings is as follows: Cormany, 298; Peck, 285 1/2; Southwell, 276; Crouse, 275; Gallie, 264 1/2; Allen, 255; Dittmar, 250; Harper, 245; Orr, 228; Coolidge, 213.

There are two deductions that I may be excused in offering. The average score of the five hand mallet men selected by Dr. Dittmar, is 257 3/5, while that of the three Bonwill Mechanical men is 276. The other feature is the interesting fact that in active competition six out of ten operators, succeeded in making non-leaking fillings in cavities that were totally devoid of undercuts, again emphasizing the fact that in daily practice pronounced undercuts are unnecessary and play an important role only by increasing the difficulties and the risk of imperfection.

The gold inlay is next in order. Pearl matrices were sent out to four experts but one of whom, Dr. Roach, had the time in which to contribute. At this point Dr. Dittmar, very kindly, volunteered to enter. The report on Dr. Roach's inlay is very short indeed. It endured 60 lbs. with no showing of leakage whatever. The report on Dr. Dittmar's inlay or inlays promises to be as surprising to you as it has been discomfitting to him, and I wish to interpose a few words of commendation of the sportsmanship of Dr. Dittmar.

In view of the fact that his contributions were voluntary he, could have, very excusably, suggested the omission of the tests of his inly but that was far from the fact. On this point I quote him as saying, "I am glad I got into it,"—"it is a revelation,"—"I am learning something and I am willing to be the goat."

His first inlay in pearl had the letter D stamped in the gold by a blow of a hammer on a steel die. It leaked very promptly and assuming that the blow of the hammer had injured the cement and being in almost daily correspondence, on other details of the clinic, I so reported to him. His second inlay in the same matrix leaked at one point at 6 lbs., with an increase in number and severity until the entire margin was busy at 10 lbs. His third inlay in the same matrix was a little better. His fourth began to leak at one point at 2¼ lbs., at two points at 4 lbs., five points at 5 lbs., seven points at 20 lbs., ending with the entire margin being unreadable at 45 lbs. His fifth, this time in steel, I am very pleased to state showed no leakage at the full pressure. I will leave the details to him, but if suspicions have entered that the pearl matrix was at fault in the first four attempts, how may we reconcile the showing of Dr. Roach's inlay in pearl or the fact that six out of ten gold fillings did not leak and that the other four leaked very slightly at two, three and four points only.

Not being an inlay enthusiast, I do not feel privileged to enter suggestions beyond stating that the test, after all, seems to have an application in the direction of the cements used for setting inlays.

Up to this time I have offered the contributions of other operators, and I am deeply grateful to them for their co-operation and to Dr. Dittmar, for his extreme patience and earnestness. In this work I have striven to impress upon everyone that a spirit of absolute fairness underlay it all, and I am comforted by the belief that in this, at least, I have succeeded. I next and lastly offer a few personal tests of well known amalagms that have been made with such extreme caution that I offer them seriously.

During the month of December, it was my good fortune or good luck to place, in a steel matrix, an amalgam filling that withstood 60 lbs. pressure on December 17, and also on December 19. Under the belief that I could duplicate this with the same alloy and possibly with other alloys, I undertook nine experiments.

I had four objects in view: First, to note if two fillings of the same mix would read alike. Four of these were, therefore, duplicated, making eight of the number. Second, to note if a difference lay between a coarse alloy and the same alloy if ground fine before mixing. Third, a general comparison as to shrinkage. Fourth, the behaviour of all, one and two weeks later. Fifth, to note if I could allege anything in favor of a two minute use of the mortar.

Before describing the technique, I beg to explain why I did not weigh the mercury and alloy. In the report on the amalgam fillings of the other operators it may be remembered that but one reported the use of the scales, and inasmuch as the instructions going out with the matrices clearly requested that the operators follow their usual technique I assume therefore, that it is more than likely that only one out of twenty-five practitioners use a balance or have one. Perhaps one in one hundred would be nearer. I therefore omitted the weighing and indulged only in such precautions as could be possible with everyone.

The technique was the same for all and may be tersely set down as follows: Mortar for two minutes. Medium stiff through chamois. Large round burnishers. Excess mercury not removed from time to time. When the packing was about completed the considerable bulk of excess was removed and a little of the original mix added, and pressed and rubbed to place with the flat side of the handle of cotton pliers. Two of the alloys have a national reputation. The other two are well known in the west, at least.

The three readings January 4, 10, and 14, resulted in the following: First, four of the fillings were of the same alloy with which I succeeded so well in December, and while none of them leaked at less than 5 lbs. all began to leak by or before 10 lbs. This is greatly to the credit of this alloy but not as creditable as I expected. Second, three of the four sets of the duplicates were practically the same. The fourth pair was baffling in the fact that while one stood the entire 60 lbs. without leakage, the other began to leak at six places at 20 lbs., with eleven fine points of leakage at 60 lbs. Third, nothing was shown favorable to the grinding of the alloy into a powder before mixing. Fourth, of the four makes of alloys used, two withstood the full 60 lbs. The other two began to leak between 5 and 9 lbs., as stated, with practically the entire margin busy at 60 lbs. Fifth, almost the entire number showed less leakage at the subsequent readings. Sixth, the fact that two did not leak at 60 lbs. and that the other seven held up to 5 lbs., I ascribe to the general excellence of the alloys and to the two minute use of the mortar. Seventh, a good alloy is capable of great things and should be mixed respectfully. Eighth, a poor technique will make a poor amalgam filling of the best alloy made.

If you are interested in amalgam, I have a practical suggestion to offer. Adopt a square, one ounce bottle, and upon one side paste your technique for the year 1911. Do this on the other three sides each at the first succeeding year, and you will have no occasion to make a special entry of the technique. When a patient returns with a filling that you do or do not admire, a knowledge of the year in which it was done will enable one to know the technique by simply glancing at the bottle.

Gentlemen, I have burdened you with too much and hope to be forgiven.

FROM DENTISTRY TO FARMING.*

BY DR. E. J. PERRY, WENDELL, IDAHO.

Gentlemen of the Society: It gives me great pleasure to be once more in your midst; to once more meet around this festal board, to look into your faces, to exchange fraternal greetings and feel the warm touch of old friendships. One face among the absent ones will never return. How we all enjoyed the friendship of Dr. Wassall. I always felt safe with Dr. Wassall, and the touch of his genius. His high professional ideals, and his warm friendly nature were always an uplift to us all, and his memory will ever be a sweet benediction. His name is written high on our scroll of honor along with "Uncle" George Cushing, "Pop" Swasey and Harlan.

I suppose since I am not in practice you will expect me to tell you about my new surroundings and how I like my work. Idaho is a very new state. It has two senators and one congressman in the national legislature, and her entire population does not equal some of the wards in this great city. My farm is located in the great Snake River Valley, and is 3,280 feet above sea level. From my house I can see snow-capped mountains on three sides. And all this great valley is a vast sage brush plain or desert, specifically what may be called semi-arid. Wihout the water of irrigation of no use to mankind, with the water of irrigation it springs as if by magic into a wonderland of productiveness. My farm is on a great irrigated tract, composed of 180,000 acres. The main canals and distributing laterals make a total of over 750 miles in length. This water is taken from the Snake River, but a large reservoir built at great cost upon an upper bench having forty-seven miles of shore line, a great inland lake, provides water in lean years giving security and certainty to farm calculation. An irrigating system is the exact antithesis of a river or drainage system, for that is what a river system is. The main canals run in the high places, and the distributing laterals run from these canals. The canal gets its water from a large body or supply, and distributes it to the periphery of the smallest corrugation on the farm, while a river system is exactly the opposite. There is one especially tall and imposing range of mountains within easy view from my home which I have renamed. I call them the Odontological range. There they stand, great, noble, sublime, and stately peaks, for eight months of the year deeply covered with snow. I have them all named for each one of you boys. I often speak to them. I can see a parallel between you and this lofty range. The snow which covers these mountains finds to me a parallel in the usefulness, the experience, and the work of the Odontological Society. These mountains are but the storehouse for the moisture which is afterwards delivered to us. The snow, when the sunshine of summer comes, melts and runs down the mountain sides and out into the rivers and thence on to the irrigating and distributing system of our great tract, and is delivered to the man in the field, spread upon the ground, and its results bless mankind. And just so it is when you give time from your work to come here. You think for those who will not think for themselves, and your thoughts benefit those far, far removed from you, and the result of your investigations and of your thoughts, and ideas are carried through the channels of distribution, our dental literature. It finally gets to the man in the field and he uses it, and it blesses mankind. In my wanderings over my fields, when my thoughts are engaged in this, that or the other thing, I find myself engaged in thinking of you. I am glad to say that it is not an easy matter for me to separate from my friends, and this society has been to me the most attractive, the most desirable social relationship that I have ever had. We have shoved our feet under the same table. We have told stories and exchanged experiences, and we have lived together for a good many years, and I cannot turn this friendship behind and forget it. I feel so kindly towards you. When I think what I have been, I have often wondered if it is possible for me to have been, whether I am now or not, and it is awfully kind and charitable for you to think that I even have been, and when I write a letter to any of my professional friends I always say, yours "Fraternally, *still.*" There is a fraternity among farmers. There is a fraternity among all men who think the same kind of thoughts, but the trouble with the farmer is that he has not been in the habit of thinking. He can learn from the dental profession this lesson, that I have learned, that the beginning of dental associations was the beginning of dental progress. We have a canal association in our state, which is rather busily engaged in other things just now, but a part of their plan is to consider things agricultural, irrigation, horticulture, and so forth. Now, my dear boys, I am going to tell you a few things I am doing and a few things about the country in which I am doing it. I am going to tell you a few things first about irrigation. There is not one of you who knows very much about irrigation work, barring my friends Dr. Reid and Dr. Roach, who know something about it.

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*Delivered before the Odontological Society of Chicago, January, 1911.

Irrigation is the only way to water land. Rainfall is unreliable, and while it may come just right, the chances are it will come just wrong. Rainfall is wrong in its application to soil, and it is wrong in the time that it comes. I am not offering a suggestion to our Father in Heaven who provides the rain, but that is the only way He has got to give it to us from the clouds. In the first place, let us inquire what the moisture does to the soil, and what the function or duty of water is. The soil contains the plant food, the mineral elements and the nitrates. Water is the blood of the plant. If you give it too much moisture all at once, the mineral elements or plant food are not only dissolved, but washed down beyond the reach of the plant, consequently the plant to be moistened ought to be to a certain point, that point being the point at which plant food may not be washed beyond the rootlets of the plant. There comes a rainfall and it not only reaches the soil, dissolves the mineral elements, but it washes it away and carries it down the hillsides and into the streams and thence onto the rivers and is lost forever. Furthermore, the wheat field needs irrigation sometimes when the oats do not need it. The oat crops should be watered quite lavishly until almost time for it head-out. When it is time for the head-out, it should not have any water; then the plant shows the quality in plant life which all plants have of reproduction. It immediately heads out. After it has started to head out, force it by the application of water. After the head is grown, take away your water, the sun will do the rest. This is raising oats scientifically.

As for apples, the raising of apples in a rainfall country never can be comparable to the raising of apples in an irrigated country. To begin with, you have horticultural laws which you do not enforce. We spray and use whatever spraying is indicated. We get the benefit of this spraying; whereas in Michigan or in Canada there might come a heavy rain, and it has to be sprayed again. You do not get the benefit of it. From the fifteenth of August to the twentieth of September it the most vital time in the life of the apple. What the apple needs and should have at this time is continuous sunshine and no water, and in a rainfall country it might be that way, but it is likely not to be that way. It is likely to come on rainy and cloudy for two or three weeks, and you have got apples that will not keep. The apples will not become hard, they will lack flavor, they lack dry air and cool nights. When the great Pacific northwest began first to raise apples they raised apples like pumpkins. Today you can raise apples any way you want, and each apple has a characteristic flavor. All these things are within the control of the horticulturist, if he understands it, and these things are not within the control of the horticulturist in a rainfall country, and that is the reason the apples will not keep. That is the reason that a box of apples on the New York market, brought there from Hood River will be sold readily for more than a barrel of New York apples. These are facts, and not sentiments. It is just so with potatoes. You can raise potatoes with humps on them if you want to. It depends upon water. In other words, there is a chance for the scientific man in an irrigating country that he cannot possibly have in a rainfall country. He can do things in an irrigating country that he cannot do by any possible means in a rainfall country, for the reason that he has not got control. He has nothing to say about the water that he shall receive, and the water he shall receive is the most important element in plant life.

Now, about the fertility of our soils. Our soils are rich in mineral elements—phosphates, carbonates, 4½ per cent carbonate of lime, the largest percentage of carbonate of lime of any soils in the world. Our soils are made by the disintegration of lava rock.

Your soil is called alluvial soil and it is made by the disintegration of plant life. Take Lousiana and parts of Florida, the soil is found very deep, but your soils are poor indeed in the mineral elements. You have robbed the soils of the Mississippi Valley of the mineral elements until you do not raise half as much corn per acre as you did thirty-five years ago. You sought to revivify the soil by the use of lucernes and legumes. Now you are using alfalfa. That brings to your soil nitrites, but it does not bring carbonates and phosphates, nor the iron elements. These elements of fertility you must have in the soil to revivify it. We are in a semi-arid country. We have never had great floods leaching the soil and taking away the mineral elements. All of the fertility still remains. It may have been forming for millions of years, and the only vegetable mold there is there is incident to the sage brush, which is indigenous to that country, and it is estimated by scientific men that the mineral elements of our soils in southern Idaho under the fiercest kind of soil robbery will not be exhausted in seventy years, and by a wise system of conservation, of crop rotation, the use of lucernes, and so forth, and the returning to the soil of certain elements of its fertility by stock raising, our soil for seventy years need not be materially weakened in its essential elements. Therefore, we are in a garden spot. We are under the greatest irrigation system there is. We have access to the waters of the great Snake River, the seventh largest river in the world. Speaking of mountain peaks, the Odontological Range did not have enough snow upon its head, this year. I have some of these peaks named. I have one of them named Johnson. Johnson is quite a tall and lofty peak; but there is one grand peak, not quite so sharp, and I call it Brophy. It is snow-clad. I think of that white head of hair. This peak reminds me of him, and these are all my personal friends. I have only personal friends in my field. The grass, the plants, even the chickens, the hogs, and everything on my place likes me. I love the life. There is one large, magnificent, sublime mountain which I have named Cook. We had a lecture by a stock breeder from Madison, Wisconsin. I do not recall his name, but he knows Dr. Brophy. He spoke of pure bred cattle, about grade cows and pure bred sires. He told me some interesting facts in connection with breeding live stock, and especially of one particular element, and that is the same element in your character as professional men that will enable you to succeed, and that was his love for animals. He said he bred a cow and she had a magnificent record. I think this cow produced a thousand pounds of butter or something like that. He sold this cow to a man in Oregon, and sometime after he had to deliver a lecture on stock breeding, in that place and went to the man's farm who had this cow, went into the pasture, where the cow was. The animal came up to him and smelled his boots, smelled of his clothes, and licked him in the face and followed him around the pasture. He put his hand on the cow, rubbed her down, called her by name, she followed him to the gate, and looked up in his face as much as to say, "I wonder if I shall ever see you again." Now, he says, "Gentlemen, if you love your stock as I love that cow you will succeed in stock raising." So it is with us as dentists. If we love our patients and work for the good of them, we will succeed in our work; but if we insert fillings, if we treat pathological conditions, if we insert artificial dentures, and do our work generally, simply for the dollars we get in return for our services, without the love of it and the benefit we are doing humanity, then it is drudgery. And I say to you there is no such thing as menial labor. I do not care if I am cleaning out a stable; I do not care if I am currying a horse, I do not call it menial labor. Whenever labor becomes menial, it is the *man* that is menial. If you are scaling the teeth and removing extraneous substances from them, it is not menial labor. I can remember my preceptor, putting me to clean teeth. It was the first thing I did in the mouth of a patient. It has been said that anybody can clean teeth, and it is called menial labor, but it is not.

I thank God for the liberty and privilege of working. I do not ask any man for the privilege of doing nothing. I shall not retire from work until I am buried. The biggest nuisance in a country is a retired man. It is a shame for any man to think of retiring. Let us think big thoughts. There is no place under the blue sky of heaven where a man can think big thoughts as well as he can on the farm. Just think of it! What is a hen? It is an egg factory. It needs lime to make a shell. You would not take coal or kerosene oil to a cheese factory except to make fire, but you would take milk and cream there. It is the same with the cow. The cow is a milk factory. That is all a cow is. Other elements enter into it. Do you know Gregg of Minnesota? He owned the great sire Redemption. He redeemed his herd and he called him Redemption. He said one of the important elements in the milk cow is the great big eye that stands out so that one seemingly can knock it off, adding intelligence to the face of the animal, if not thought. They are entirely different from the beef type of cattle. Breeders have a particular beef type of cattle, so that the greatest amount of meat comes in that portion of the animal where the most expensive cuts come from,—the ribs and back and loins, and the same thing is true of sheep. I am just like a sheep. I am just like a cow. I am just like a horse. As Darwin would say, I am yielding to the law of environment, and that is the way with the different types of plants, and of hogs and sheep. The Southdown sheep is the large type of mutton sheep, and every county in England has its own breed of sheep. They would not mix the breed for anything. Let us take the Hilldowns, they are a little different type of sheep, because they have not had as good food as the Southdowns. Where they have had better food for a long time, they develop a better type of sheep, a better mutton type. The wool sheep come from Spain and France very largely. The mutton type of sheep comes from the meat eaters of England largely. The sheep is a fine animal and Idaho is a natural home for sheep. It is an animal that will winter without grain. The hog belongs to the corn-belt country. Hogs do well on alfalfa, but a hog will not live a long time and do well if you give it only corn. All of this is exceedingly interesting to me.

I have not told you anything about the opportunities for study, the opportunities for observation, the opportunities for thinking. The best type of character is rarely developed in a large city. If a man gets into certain lines of work and grows, the opportunities are here. This is a great city. Some one has said that you can be just as good in a city as you desire, and you can be just as bad. I know you are all glad I am so happily situated. This thought comes to me sometimes, however, that the real professional man never abandons his profession. I told you I went into the profession of dentistry, beginning my studies in an office in 1868, and I stayed there three or four years, including the time I was in the Philadelphia Dental College, and I really commenced dentistry when it was in its formative period. There was no dental engine then. I was one of the first graduates of a dental college. I was among the first graduates that came to this state. I do not believe there were a dozen graduates of dental colleges in this state when I began to practice dentistry. They looked upon me with some degree of scorn, some of them. I remained in dentistry all during this formative period and to a certain degree grew along with it, and then two years ago I discovered that the dental profession had grown numerous. That every corner had a dentist, and the profession had grown to such an extent that it was very efficient. I thought I had done my duty, and the world could get along without me. I thought I would not be missed if I dropped out. Behind that there was another consideration, namely: I was not old but, that I was going to get old after a little while, and I thought I would make a change. I never ought to have been a dentist anyhow, but I always had confidence in my profession. I was proud of it, and I did not allow its banner to be dragged into the dirt at any time. I made up my mind that I ought to go back to the farm. Lots of people called me a farmer, and I must say that I love the farm. I did not go to farming with a feeling of dislike. I love the smell of new-mown hay. I love the smell of a cow's breath. Did you ever smell a cow's breath? I like it. It is fine. It beats anybody's breath I ever took in filling teeth, and I made up my mind, inasmuch as I had the opportunity, I would go back to the soil. I believed I could be revivified and made young, and I know that since I have been on the farm out in Idaho, it has done me a wonderful amount of good physically. I feel young again, and I believe that my theory is correct. I ask no odds of any man on my place; I do not care who he is, whether it is loading manure or pitching sheaves on the wagon or pitching them onto the stack, or stacking it. I lived and worked on the farm in my younger life, and that life came back to me. I worked for years on the farm by the month. I milked nine cows morning and evening after the day's work was done. That is a part of the day's work. I do not want to work one mintue after dark. I tell my men they must work in the daylight. It is not dark in Idaho until nine o'clock. You can read at nine o'clock in the evening on summer days, or four o'clock in the morning. We are 3,280 feet above sea level. The air is dry, pure and clear, and the heavens are the most beautiful I have ever gazed upon. Our sunrises and sunsets would inspire the enthusiasm of any painter or artist. Our clouds are beautiful. Our mountain ranges with their ridges are beautiful to gaze on. Eight months in the year they have snow on them. The possibilities of country life are large.

There is another reason why farming is a profitable business. Just now the farmer is sitting at the first table. You fellows are getting the worst of it. We are doing business on a gold standard. The output of gold in 1908, was 440,000,000, of which 80 per cent went into the mints. The laws governing money that should be placed in circulation do not regulate the amount of it because it depends on how much is brought to the mints. The mintage of this country will amount to $1.50 per capita this year. In five years the gold money stock of the world will have added to it $2,000,000,000. Soon it will raise the level of prices. I take the ground that inside of five years that live pork will sell for $15 on foot. It is about $8.00 *now*. It has been $11.00. This is due to the big crop of corn. We have had the biggest crop of corn in many years. Cheap corn will mean cheap pork.

You as professional men feel this fluctuation in the price of commodities. The laboring man feels it. The producer gets the benefit of it. The consumer feels it, because while the price of your services do not rise, the purchasing power of your dollar falls. A man in 1896, receiving $60.00 a month, and in 1908, receiving $100.00 a month, would not be drawing a bigger salary than in 1896. You take the average price charged for dental work today—and we are only a small part of the men who do dental work in this great city, because there are 2,000 or more here,—and you will find it is not higher than it was in 1896, perhaps not so high. When you take into account the purchasing power of your dollars, it is mighty cheap, and it is difficult, excepting in individual instances, to raise prices as fast as the purchasing power of the dollar falls. In my case, I do not raise dollars on my ranch. I never saw a dollar grow on sage brush in my life. I raise stuff to buy dollars with, and the more dollars my stuff will buy, the faster I can pay my debts. That is the reason farmers are sitting at the first table today.

Lastly, I am awfully glad to see your faces again. I see you all in my mind's eye. I see you sitting around this table. I think of you. Lots of times you come into my mind, and until the time comes when I shall leave here and go to the next place, I shall not cease to love this society. (Applause.)

DENTAL LITERATURE.

A FRIENDLY CRITICISM

BY DR. MARK G. MCELHINNEY, OTTAWA, CANADA.

Service is the fruit and literature is the flower of a profession. The flower is the symbol of the process by which nature brings together those hidden forces from whence the fruit proceeds. "By their fruits, ye shall know them," is an ultimate analysis of character. The flower is not ultimate, neither is character in the making, but the relative perfection of the flower is the index to the quality of the resultant fruit.

Literature is the product of time, knowledge and culture, and comes not to any profession in the days of its earlier upward struggle. It is the reward of the tried, the matured and the recognized. Culture is not knowledge, nor experience, nor abilty, nor morality, nor religion. It is the influence of the ideal, working through all of these things upon character. The profession of Dentistry, in its evolution, has passed through two stages and is entering the third. In the first, it was a mechanical trade for the purposes of individual livelihood; in the second, a technical profession, allying itself with science for the better adaptation of its means to its ends; in the third, a recognized, learned profession, identifying itself with the needs and progress of humanity.

In the first, it was master and pupil, a root and a sprouting stem; in the second, a goodly shrub, deep-rooted and widely branched; in the third, it must flower luxuriantly in order to produce the fruit of Service.

The past quarter of a century has made much good history for our profession and has given to it names that shall be remembered in respect and gratitude, and it shall not be said that they have not brought to it buds and blossoms for the promise of a glorious future. Many as our great ones are, they are as yet too few. The fullest fruition cannot come until each member strives to emulate the best. Individual limitations may prevent the universal attainment of the best, but no law of God or man can inhibit the desire nor can it set a limit to the attainment of each individual beyond his former self. Granting individual limitations, no one knows his limitations until he has tried them out, nor are they tried out until the last battle is fought and the fighter hands back his sword to the Grand Master. Our profession is young, the marks on the few blazed trails are not yet seared by time nor are the trails trodden deep with the many feet that make for the binding conventionality of form and custom. It is full of untried ways and incentives to fresh discoveries. It is like America in 1776, discovered, settled and won, but with a continent of possibilities beyond.

In this continent beyond lie the possibilities of our professional literature. It is no reflection on our pioneers to say that these fields are but thinly trodden. Waste places have been made productive, order has arisen out of chaos and we have achieved the skeleton organization of a learned profession but the end of our attainment is not yet. We need a broad, general literature to record the history of attainment, to stimulate and encourage us, dignify our authority, enforce our claims and enthrone our ideals. No one man, no group of men can give us this. It can arise only from the products of the many, from which Time, the impartial and inevitable critic of human action, will glean that which is to live. There is none too obscure, too self-effacing, too lacking in talent to contribute something to the mass. It may be but a sentence, a paragraph or a single essay but if it be conceived in truth or vibrate with enthusiasm or strike a chord in sympathy with our ideals, it will live, and its author with it.

I do not know whether, after we have left the stage, whereon we play the interesting little comedy called Life, we shall live again, or simply glide into hard-earned and eternal rest. While the question concerns me little, it would be unkind to crush the hope that might be dear to a fellowman, but, of one thing I am assured and that is, that each one of us may do a little good while here. We may relieve the play of some of its tragedy, some of the cruelties of burlesque, some of its "Comedy of Errors," and help to push the incarnate Mephisto further down to the Pit of Oblivion, and in so doing, make it easier for those who come after.

The profession of Dentistry has a message for the human race, a message of hope and relief from some of its physical suffering and through that a means for its mental and moral uplift, and it is the duty of our literature to carry that message, universally and not to be misunderstood.

PREVENTIVE DENTISTRY. WHAT IS IT?

BY RUSSELL H. CHANT.

The definition of medicine given by the Encyclopedic Dictionary is "a science and art first to the prevention of diseases and, secondly, to their cure." Then the object of medicine is to prevent disease; its cure is a secondary consideration. For centuries past the medical profession seem to have lost the idea that their principal object was to prevent disease as well as to cure it. The average physician did not study sanitation, but was content to try to cure the disease when it occurred. The ancients and barbarians gave them a lesson in this by having and wearing charms to prevent them from harm and sickness.

In the last few years physicians are awakening to the importance of preventing disease, and they are now giving as much time to this study as to its cure. Courses are being given in sanitation, social economy, contagious diseases, etc.

It is not long since a chair of "Preventive Medicine" was started in many colleges, and today every physician practices more prevention than he does cure. The history of dentistry is co-incident with that of medicine. Relief of toothache and its prevention was sought in charms, but until recent years little was done to prevent disease of the teeth, while much was done in the way of substitutions. Making artificial substitutes cannot be looked upon as preventive dentistry, while all other operations in dentistry may be so considered. All the methods of dieting and uses of disinfectants may be looked upon as preventive dentistry, as are all modern methods of medication and prophylaxis. It is easily seen now that operative dentistry is preventive dentistry. True it can be divided into different classes such as prevention of decay, prevention of diseases of the peridental membrane, prevention of general diseases. In neither decay nor in peridental affections has much progress been made in general treatment. When it can be shown that decay and peridental affections are indicative of general disorder then we may hope for dietetic treatments. When this cannot be shown little will be done. There is no ignoring the fact that the proper mastication of hard food stuffs keeps the surfaces of the teeth polished and prevents decay.

Every known internal treatment has been used for pyorrhea without any positive results. At present the only prevention of troubles of the peridental membrane is local, removing and preventing all sources of local irritation. Crowns and bridges are made so there is no point of irritation, and fillings and rough edges of teeth are smoothed to prevent irritation.

Of late the prevention of decay by internal medication has received a stimulus by the work of Dr. Low and such men. It has been shown where there is an abundance of sulpho-cyanates and absence of ammonia, decay does not occur. So potassium sulpho-cyanate put up by Parke, Davis & Co. in half grain tablets was administered, increasing the amount of sulpho-cyanate in the saliva and thus preventing decay. It has also been proven by experiment that sulpho-cyanate prevents the formation of the gelatinous placques of Williams. From these and clinical experiments it may be expected that the gelatinous placques can be prevented from forming by the administration of sulpho-cyanates. The present need is to go farther back and show why there should be a presence of potassium sulpho-cyanate in some mouths and an absence in others Since it has repeatedly been shown that the use of disinfectants and drugs applied to the teeth has no influence to prevent the formation of dental placques, then the rational measure is to prevent their formation.

Local measures for prevention of decay have been in use for centuries. The Arabians used gums and cements for filling cavities, and rubbed their teeth with pepper and such things, showing that local prophylactic measures have had more adherents than general treatment. But since the cause of decay (by Miller, Williams, Tomes, and such men), has been found, much progress has been made in the prevention of decay. These men have shown that decay extends beyond the point of local softening and must be removed to prevent recurrence. It has been a well known fact for centuries that if decay be removed and the cavity filled in some way so that moisture does not enter, decay does not recur. The prevention of decay seems to be easier than to prevent any other infection of the human body. It is true that while disinfectants have no effect on it, almost any kind of a filling will retard decay.

Decay begins in defects and those surfaces of the teeth not kept clean in mastication. Upon this observation is based the practice of extending the walls of a cavity until they reach the area which is always kept clean, known as "Extension for Prevention." Later we have Dr. D. D. Smith advocating the removal of these gelatinous placques, helping nature in starting the prophylactic treatment, the greatest step yet taken in preventive dentistry. This is done by the patient as well as the dentist, the latter going over the teeth with an orange wood stick and powdered pumice and in the interproximal spaces with silk tape loaded with pumice. The patient is instructed in the manner of brushing his teeth and to do so regularly.

It is a recognized fact that the condition of the teeth and mouth has a great influence on the general health. Thus we must look upon preventive dentistry in a broader sense than the prevention of caries and pyorrhea. Preventive dentistry covers the whole field of operative dentistry, and cannot be applied to one department. All our operations have for their purpose the prevention of further destruction and disease. To do one's work with the idea that it will prevent further loss and decay, and not only restore to health parts which have been diseased, but also prevent diseases which can only be foreseen by the trained physician or dentist is the work of a professional man. Let us at once arise and have a broader conception of things along these lines.

PIONEER DENTISTS OF CHICAGO.

BY FRANK DU SOUCHET.

DR. ELIJAH WELLS HADLEY.

Dr. Hadley was probably third in arrival among those in dentistry who became settled residents of Chicago. The only survivors of Dr. Hadley in 1911, are his son, E. W. Hadley of Santa Barbara, Cal., and Mrs. Margaret S. Eddy of Evanston, Ill., a step-daughter.

At the time of his father's death, March 4th, 1865, Mr. E. W. Hadley was in his seventh year. He was soon after sent away to school and when prepared, to College at London, England. He did not return until 1877, and thereafter, for eighteen years, was engaged in railroad work over the western states. In this way he was out of touch with all sources of information concerning his father's life. Mrs. Eddy has the Hadley family bible, in which Dr. Hadley's birth is recorded on April 25, 1814.

Both Mrs. Eddy and Mr. Hadley have always understood that the Doctor had come to Chicago from New Hampshire, his native state, in 1838. Mrs. Reynolds of Chicago, mother-in-law of Chief Justice Fuller, was his only sister. She passed away in 1902, and with her the only source of information. His widow survived him forty-three years, and died at Chicago in January, 1908.

Dr. Hadley was one of the earliest agitators for a City Dental Society which resulted in the organization of the Chicago Dental Society; early in 1864. He was made chairman of the first meeting, and on being organized, was elected president. At this time he was the senior member of the profession at Chicago, and one of the most respected. The survivors in 1911, of those who took part with Dr. Hadley in the organization of the society are the veterans, Dr. E. W. Sawyer, who was elected secretary, and L. P. Haskell, who is still in practice at Chicago.

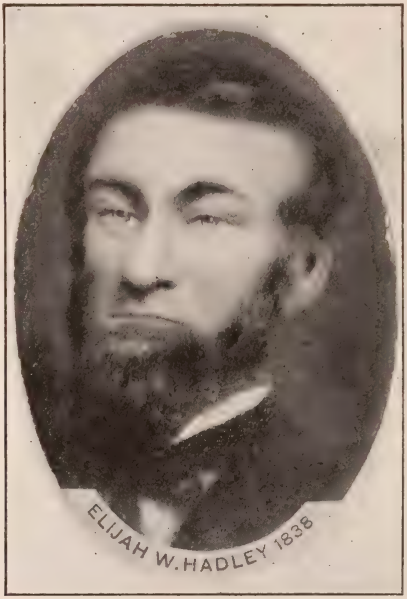
From the records of the Secretary's book of the society is copied the following resolutions:

THE LATE DR. E. W. HADLEY.

We have again to record the death of one of the earlier citizens of Chicago. Dr. H. removed to this place some twenty-four years ago from New England, and, satisfied with his choice, has ever since resided in the home of his early adoption. We know of others, who, more restless or ambitious, or covetous, after tarrying here awhile, went to the South, or to California, and finally returned to Chicago, with the settled conviction that there was "nothing like it," but Dr. Hadley always remained true to his "first love," and seemed to think, with Franklin, that a "rolling stone gathereth no moss." He was held in much esteem by the older citizens and by all who had the pleasure of knowing him. He was favorably known in his profession, and was, at the time of his death, the senior resident dentist in the city. The first president of the Chicago Dental Society, his loss is very sincerely deplored by every member of that body. At a meeting of the society on Monday evening, March 6, 1865, Drs. Ellis and Cushing, from the select committee, reported the following resolutions, which, after appropriate remarks by Drs. Ellis, Freeman and Cushing, were adopted and ordered spread upon the records:

Whereas, By the providence of the Supreme Ruler of the Universe, who controls all human destiny, and doeth all things for good, we have had suddenly taken from our midst, our worthy and much loved president, Dr. E. W. Hadley; therefore, be it

Resolved, That while we reverently bow with chastened submission to the high and imperative mandate of our heavenly Father, we will endeavor to derive solace and consolation from the hopeful assurance that his appointed pilgrimage is completed, and that he is only called from earth to partake of the heavenly banquet, in the presence of God forever.



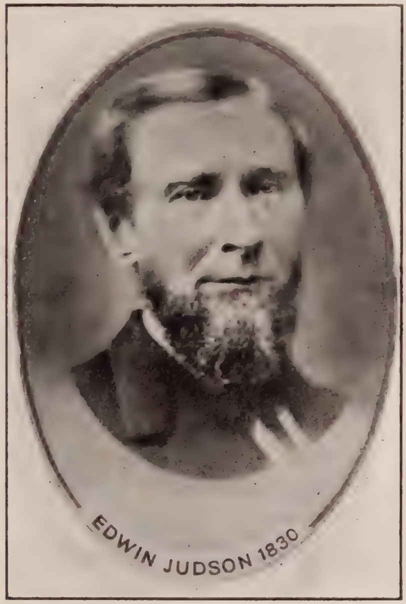
Resolved, That his unwavering integrity and unaffected urbanity of character, and his devotion to this society, and the profession of which he was a highly respected member, his charity toward his professional brethren, his indulgent and affectionate solicitude as a husband, parent, and friend, constitute a cluster of virtues worthy the admiration and emulation of all who aspire to be good.

Resolved, That as a society we will gratefully cherish the memory of him whose death we now deplore, and, as sincere mourners, extend our fraternal condolence to his bereaved family, fervently hoping that their sorrows may be lightened and their grief assuaged, by commending them to the sovereign care and infinite mercy of Him who gave, and who has taken away.

His funeral was attended yesterday by a large concourse of mourning relatives and friends, and we trust his memory will be fondly cherished by those who revere the sweetness of death when graced by virtue.

DR. EDWIN JUDSON.

Edwin Judson was born at East Hartford, Conn., February 22, 1809. His father was Deacon John Judson, a substantial farmer and a pillar of the Congregational Church.



Edwin studied dentistry at New Haven, but before settling down to practice made a tour of investigation through Ohio, from which he returned in 1830. In 1832 he married Miss Julia L. Wheat of Glastenbury, Conn., and for the next eight years practiced there. In November, 1840, Dr. Judson removed with his wife and little daughter, now Mrs. Julia A. Tourtelotte, to Chicago

His first practice was in the parlors of the Tremont House from which he removed into permanent quarters at 98 Lake Street, where he practiced during the next seventeen years. In 1857, ill health brought necessity for rest and he bought property at Geneva, Ill., where he lived in retirement the following ten years. He then returned to Chicago, but not to practice, living in retirement until his death, March 3, 1889, aged 85 years.

PRESIDENT'S ADDRESS.*

BY DR. H. F. D'OENCH.

Mr. President and Fellow Members of the St. Louis Dental Society.

It is with some reluctance that I conform to the ancient custom of delivering the usual annual address. For fifty-five years our members have listened to similar inaugural messages of my predecessors, many of whom were men of great erudition, well versed in the gentle art of graphically and eloquently expressing themselves, thus leaving me in the uncomfortable position of adding my poor effort of platitudinous repetition to their total of splendid recitals. However, I take hope in the thought that few of you were present during the past half century to hear these readings.

Paradoxical as it may seem we are at present, in spite of our age, a young, vigorous and ambitious society. Through able and efficient management during the past few years, we have grown from a membership of ninety-six to the present number of two hundred and twenty, which represents nearly all of the reputable dentists of the city.

Furthermore, the interest in our proceedings has been of steady growth, the fraternal ties have been fostered and I feel that in assuming the duties of this high office, I am fortunate in finding our society rich in its history of great achievement, large in membership and provided with funds ample for its purposes.

Upon reviewing the trend of thought as manifested by utterances at conventions, and reflected in recent literature, we find that aside from scientific and artistic evolution which is constantly in evidence, the profession generally is looking to a wider horizon, evidence of an awakening consciousness of the necessity of a larger scope for our activities.

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*Read before the St. Louis Dental Society, January 10th, 1911.

Such subjects as the treatment of the teeth of the poor, the inmates of our eleemosynary institutions and the growing interest in the examination of the teeth of our school-children not only continue to attract the attention of our profession, but also that of the medical authorities, chiefs of the departments of general education, and of the public as well.

This indicates that our endeavors to raise the standard of efficiency and general health of the community through proper care of the teeth, are gaining recognition from all quarters.

In this connection your Executive Committee have invited Dr. Stewart, official medical examiner for the school board, and Mr. Rathman, assistant superintendent of public schools, to address us upon these all-important subjects.

I maintain that if dentistry is to hold and advance in its recently acquired position of being a learned profession, these altruistic questions of hygiene, must continue to receive our serious consideration.

Co-incident with the nation-wide interest in the above mentioned subjects, is the great movement for better organization of our State Dental Associations, with the immediate result in view of making them truly representative by increasing their membership to include the majority of practising dentists in the respective states; the ultimate effect of which will be the elevation of the dental profession as a whole.

Personally, I have no doubt that through this spirit we shall ultimately find a National Dental Association which will be national in its representation of the constituent state associations instead of its present status of comparatively small membership and very loose affiliation with representative dental organizations.

You will remember that it was during the administration of our esteemed friend, Dr. B. N. Pippin, that this society took upon itself the initiative which has culminated during Dr. C. C. Cowdery's term, in the reorganization of the Missouri State Dental Association at its session in this city last May. In consequence of the adoption of the new constitution by the state association our society shall enter upon a new era during the coming year as by the operation of the new plan we shall become a constituent of the larger society and the representative society of the St. Louis district. Thus, while retaining our identity as a local society, the scope of our activity must, perforce, be widened and our consequent responsibility much increased.

I recommend that the important work of revising our constitution and by-laws to conform to the new requirements, be undertaken at the earliest possible moment.

Having fathered the reorganization movement it is incumbent upon us to give our unstinted support to the Executive Council of the state association and further prove our interest in the welfare of dentistry in Missouri by largely attending the coming state meeting at Joplin.

The fundamental objects of this society, though quoted "full many a time and oft," are always worthy of repetition and are especially emphasized at this time as we are better equipped than ever before for "the cultivation of the science and art of dentistry, the elevation of the professional character of our members, and the promotion among them of social intercourse and good feeling."

While we shall devote much of our time, during the coming sessions, to discussions tending to further the objects of the society, the ambition of this administration is to have such discussions lead to some tangible results in terms of action.

Any movements looking to the formation of Study Clubs, Progressive Clinics, Committee Appointments relative to public service development, or other definite work, will not only be welcomed but will be developed with all the energy of which we are possessed. It is to these subjects, calling for creative activity, to which I desire to attract your most earnest attention, as I am firm in the conviction that no large aggregation of dentists can be held in interest and enthusiasm without some plan of procedure which allows of active participation by a greater percentage of the members than we have under present conditions been able to engage, and I believe further, that it is a duty we owe ourselves, to lay down specific measures which are calculated to aid earnest individuals among us in their professional evolution. That this is an opportune time for the formation of Study Clubs there can be no question, as we have many among our "silent majority" who will no doubt be glad to avail themselves of the opportunity to discover to us their potentialities of character, original thoughts and professional abilities.

A review of our recent literature will readily indicate that success has been the rule in those societies in which club work has been introduced.

To the new and younger men a hearty invitation is extended to "cross the firing line" and "enter into the argument." The benefits to be derived from participation in Dental Society proceedings have been expressed so frequently as to make their repetition inexcusable, and I wish simply to call the attention of the younger element to the fact that our older members who have so long and faithfully labored for the uplift of dentistry, have almost without exception gained the powers and proficiency of which they are possessed through their participation in society work and have not only evolved to professional pre-eminence, but have been rewarded materially in consequence of their greater general value in the community. It is of these men of experience I most earnestly solicit aid and co-operation in our endeavors to further promote our unity and solidarity.

Knowing that the quality of the papers read before us ranks with the best anywhere, and feeling that the thorough and painstaking labors of our essayists are deserving of the widest possible circulation in the Middle West, we have, subject to your approval selected the DENTAL REVIEW as our means of publication, and have arranged with the eminent editor, Dr. C. N. Johnson, to give space for our papers immediately, and later to the discussions thereof.

In this arrangement too, lies a challenge to those who have consented to read papers during the year, to uphold the standard to which we have of late grown accustomed.

In conclusion, I want to express to you my hearty thanks and appreciation for the confidence you have shown by entrusting me with this responsible office. By the unanimity with which the position was tendered I am strongly inclined to the thought that you will continue to support me in my ambitious endeavors to build well upon the foundations so firmly planted by other lovers of the dental profession.

In the members of the Executive Committee you have elected with me I find a coterie of friends who have worked harmoniously in your interest for some years, and I feel that my inexperience as an executive officer will be well bolstered by their various abilities. I most earnestly solicit your working support in our attempt to make this year rich in concrete results for the betterment of dentistry in St. Louis.

A LITTLE OF THE BUSINESS SIDE OF DENTISTRY.*

BY E. R. HART, D. D. S., ST. LOUIS, MO.

My Friends:

I know I am going to stir up some pessimist who will feel like passing me and my humble effort toward that which is most needed in dentistry today, on to the "hot air" department of the Ananias Club. But here I stand, nevertheless, and though my words to-night may find lodgment in but one mind, I will feel compensated. If the owner of that mind has the right stuff in him he will not hesitate and ask, "Is the essayist telling the truth? I wonder if I can do all this? Will my patients stand for it, etc?" I am not reading this paper for the benefit of the man who is contented because he has a warm place in which to work, can wear clean clothes and has that externally satisfied feeling because he is called Doc. or Doctor. He justifies his contentment by comparing his surroundings with those of the day laborer or department store employe. He has been lulled into this way of thinking because our work, in many ways, is not productive of activity. I am aiming at the fellow who will lasso an idea and hog-tie it, for, after all, he is the one who really counts; he it is who will really improve his own condition, and, by so doing, will make it better for his fellow men. This, my friends, you cannot deny, for if you will be honest about it you will admit that when a patient comes to you from a successful dentist, who receives a good fee for his services, you try extra hard to do good work, and usually ask a little better fee on the strength of the education which was given by your predecessor. Do you catch the idea? One man doing good work and receiving proper remuneration, educates the patient to desire good services and increases his willingness to pay for same. This is the patient that will send him others. These people have been told beforehand that this dentist does good work, but he is not cheap.

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*Read before the St. Louis Dental Society, January 10, 1911.

Personally, I have found this the only source of gaining a staple and dependable practice. So much for the benefit derived by Dentist No. 1.

What does he do for you and me? He has several hundred patients, and he educates each one. They do not all stay with him, owing to changes, due to health, business, etc. You may gain one and I another, and if we are real dentists, and not peddlers of gold and alloy, how much easier will the work be—no talking, no explanations when the bill is presented. You will not have to have a whole line of platina, platinum, alloy, amalgam and silver, 18, 20, 24 k. gold fillings, hand and machine made teeth and plates, and a lot of other blooming lies to sell, just to get a little money. No, you will know that Doctor No. 1 educated that patient to pay for time and not for material. This man (Doctor No. 1), has, at some time, or perhaps at various times, taken stock of himself, and, not being satisfied with the advancement he was making, changed his methods, thereby improving his condition, helping himself and his professional brothers—you and me.

Are you making the best possible use of the ability you possess, or are you allowing that ability to deteriorate? The public does not know of your ability. They will take your word for it if you back it up with results. This you can not do by being underpaid for your services. Take, for example, the cleaning of teeth. Do you clean teeth for $1.00? That is a task which, if thoroughly and properly done, would consume an indefinite number of hours. How much time can you afford to sell for $1.00? Not very much. So, if you do clean teeth for $1.00, there is a discrepancy somewhere; either you are losing money for yourself, or you are giving your patient a hurry-up job, thereby doing a great wrong and an almost irreparable injury. I am willing to go on record as saying that the improper cleaning of teeth is one of the chief factors in the development of pyorrhea. The best that the patient can say for you is that you are cheap, and that mode of getting business, or advertising, has been monopolized by charlatans in every town and city, and I am sure no member of this society cares to be classed with them.

Are you capping and mummifying pulps because it saves time or perhaps because you are lazy, or too dishonest to properly and scientifically carry out the work of devitalization and root filling?

Do you cram in amalgam fillings, giving six for $5.00 for good measure? Do you 'phone the dental laboratory to send you a gold crown, medium size, and put in a whole lot of solder, because the patient is swell pay and you are going to get $6 instead of $5? Do you fill all the teeth in the mouth that need filling, or do you leave the small proximal cavities between the second and third molars because they are so everlastingly hard to get at? In other words, do you pick out the easy and quick work?

Do you, when asked to prescribe a dentifirice, say: "Oh, anything is all right. Get a box of Dr. Gates' Anti-Pyorrhea, or anyone of the six best sellers?"

Do you keep a cash account? Do you keep an expense account? Do you do any educational work other than to tell your patient "Well, you ought to have your teeth examined whether you need work or not, or whether you have tooth-ache or not?"

Do you ever think of writing a paper for your society, or discussing some one's? Do you attend, with any regularity, your society meetings, or ever the state meeting, unless held in your home city?

Do you feel that your practice, from a business standpoint, is a disappointment? Do you make a salary justifiable for a man with a special education? Do you earn any salary at all, or are you just getting by?

Do you feel that a great number of patients seen every day, a tired body, a pessimistic mental state, and no bank account, are more desirable than a few well educated patients, shorter hours, an optimistic mental state, and a bank account, or the beginning of one?

If you do all of these things you had better take stock of yourself, for you are not making the best possible use of the ability you possess.

Are you making yourself deserving of more progress by better informing yourself of the latest improvements in your profession, or are you too busy after office hours reading the green sheet to read your dental literature?

Do you still pick the deposits from your burs and excavators, instead of using a sterilizer?

Do you gossip and exchange small talk with your patients, instead of putting in that precious time educating them as to the care of their teeth?

These and many other things, which you will discover when you take stock of yourself, will tell you whether or not you are deserving of more progress. If you were an employer would you be satisfied to hire yourself? Would you care to employ a man with your lack of system, with your lack of business ability, with your inability to really make more than your salary? You, as an employer, would exact more than as an employe you would give. Indifferent work, careless and slip-shod business methods, would all count against you in the sizing up. If you were an employer would you advance a man who does not "size up" any better than you do today? Are you showing that you are a bigger earner today than you were six months or a year ago? Have you become a man of larger influence? Have you become the kind of man that the business world always finds room for—always seeks —"a producer?" Again, have you increased your scope? Have you made yourself "stand out?" Have you increased and brought out those positive qualities now lying dormant within you? Are you an individual or only one of the push? Now, ask yourself these questions and see if you would advance yourself if you were an employer.

My friends, confidentially, I sized up pretty small to myself not so very long ago. I realized that in all my years of hard work I had accomplished very little. Something was wrong somewhere, and that something was myself. That was, indeed, a gloomy time for me, and the following little rhyme is the outcome of my pessimistic outlook:

"And now who gets his meed of praise?
The dentist.
Who is it labors all his days?
The dentist.
Who always has to pinch and strive
To keep the family alive,
And sheds his hair at thirty-five?
The dentist.

Who ne'er has wages home to bring?
The dentist.
Who spends it all for supplies and things?
The dentist.
Who sees it go for food and rent
And never gets, himself, a cent

Except when he is almost spent?
The dentist.
Who owns, and wears, a saw-toothed shirt,
And collars which his thorax hurt,
While others keep up their lively spurt?
The dentist.

Who goes to bed a weary wreck?
The dentist.
Who pulls the bed-clothes round his neck?
The dentist.
Who then is forced, though he may swear,
To rise and stumble down the stair,
To pull some sucker's tooth that's there
Without the price that pays the fare?
The dentist.
Who listens to the public tell
Of all the aches that e'er befell?
The dentist.
Now this is the life in which a dentist must dwell,
And my private opinion is, that this is "Hell."
—A Dentist.

But, I took myself in hand just in the nick of time, and decided to change all of my business methods entirely. I came to realize that the chief cause of my stagnation was fear. I was afraid to demand that which was, by right, mine, fearing the loss of one or many patients. This fear was so strong upon me that I would make the most unbusiness-like concessions. And for what? For the mere privilege of working hard and long, just to have a large volume of business.

First of all I eliminated fear. This was done by deciding to either make a real success or lose every patient I had. I established my practice on a strictly business basis, and for the first time in my life I realized that time is the stuff that life is made of, and that fear is the thought of admitted inferiority. When we feel unequal to a condition we are afraid. The opposite of fear is confidence, self-reliance. Fear is not a physical thing, but it can cause a very serious physical derangement. To believe in your own divinity is to abolish fear.

But to return to the subject of myself. I found my hard work was telling on me and the long hours, a few days straight running, incapacitated me for work, sometimes for a week, in that it made me so cross and irritable that quite often I failed to feel the proper enthusiasm for my work. In fact, many times have I wished the next patient would not come, and if a patient was late, instead of reminding him in the proper way of my loss of time, I would jump on him in a most undiplomatic manner. You see, I was working long hours, trying to get ahead. Now all is different. I plan my day's work by the clock, and I educate my patients to the value of my time, and they all know what valuation I place on it. That is told to everyone before the work is begun, and I impress this on their minds by telling them that time is my stock in trade, and that they might as well expect to walk into any store and buy an article without paying for it, as to have me reserve time and not make a charge for it, if they should fail to use the time. The fact of the matter is, I do my talking first and the work afterwards. Then, both the patient and myself know what to expect. There is an expression commonly used in the commercial world which says, "It pays to advertise." For the dentist, let me coin this one, "It pays to educate." By educating, I want you to distinctly understand I do not mean boasting. That is to say, "I am Dr. Blank, the dentist, and until I got into the business the other Docs were only alveoling along. I am the one who gave to suffering mankind the great Blankeola method." This is boisterous egotism, which arouses only disgust and antagonism. There is a sharp line of difference between this and proper self-confidence which inspires the confidence of others, and within decent limits, there is no quality so effective in influencing prospective patients.

Now, gentlemen, I know you want proof, of course, of this strong stuff I have been giving you, so I will read to you the proof, not only to show you the effect of my work, but to very forcibly bring home to you the awful condition of ignorance that prevails among intelligent people. Let me read to you a little paper, written at my request, by a gentleman of more than ordinary intelligence, relating his impressions.

"Until a year or so ago I didn't pay much attention to my teeth, because, while I had a few missing, their loss didn't cause me any trouble. I brushed them for a minute or so in the morning, to take the bad taste out of my mouth, and while the question was never asked me, if someone had inquired as to the condition of my teeth and gums, I would have answered that they were good. My wife had some badly decayed teeth, and when they were extracted their absence was so conspicuous that we decided to have "something" done for her teeth, and, while we were at it, mine too. The cost of fixing our teeth, we knew, would be considerable, so we waited until some months ago when we were better prepared to pay for it. During this time I saw the advertisements of several dental parlors, and their prices of three dollars for gold crowns and 75 cents for gold fillings impressed me as being very reasonable, particularly so when I remembered people who said dentists "charged terrible." The quality of work didn't really occur to me at all. I didn't give that part of the question any consideration, and therefore have no impressions of it. It may appear strange that I, about to invest a lot of money in something, didn't think of quality, but while I had often heard of people who had received poor medical attention, I never remembered anyone who was dissatisfied with dentistry. My parents and school teachers taught me nothing in regard to the teeth, and I was greatly surprised to learn that the condition of one's teeth affected the health, because, while I often read of chewing the food thirty or forty times, I cannot remember any author of these articles who suggested that the effectiveness of chewing depended on the condition of the teeth, which, as it appears to me, ought to be the first consideration.

"These are a few of the things that make my ignorance excusable and it was only due to chance that I was directed to a reputable dentist. If it wasn't for this chance I am very sure that we would have followed the crowd who buy three dollar crowns with a twenty-year guarantee."

Now, for fear that you may miss one point I wish to make, I want to ask you what effect a patient like this will have upon the people with whom he comes in contact. Don't you think he will preach the gospel of good dentistry?

Again, just to prove my theory, let me read to you a correspondence which took place just a week or so ago:

"Dr. Hart: Did I understand you to say my bill was $15.00? If so, will you kindly send me an itemized bill. I can't see how the filling of one tooth and the cleaning of my teeth could be $15.00, so if you will kindly explain to me I'll be glad."

My answer: "My Dear Mrs. Blank:—In reply to your letter of the 14th, will say that I am very glad to explain to you the why of my charges. My charges are made, not simply for the filling and cleaning of your teeth, but for the time occupied in killing the nerve, treating and filling the roots, and properly cleaning and polishing your teeth, all of which consumed three hours time, for which I am asking you to pay only my usual fee of $5.00 an hour. Trusting this is satisfactory, etc."

Answer: "Dr. Hart:—In reply to your letter of the 15th will say your explanation of charges made for work on my teeth is quite satisfactory to me. Of course, having had so little dental work done, I really didn't know charges were made by the hour. I realize my teeth were in a bad shape and it took time to do the work properly. I'll be in, as soon as I can find time, to let you look my teeth over, as you requested, etc."

You can see, although this patient was surprised that an alloy filling and the cleaning of her teeth should cost more than $3 to $5, she did realize, when told, that her teeth could not have been treated properly in less time. Being open to reason, she understood that my charges were properly based.

All mercantile houses, both wholesale and retail, are conducting schools of instruction for their salespeople, and continually are their employes told to talk quality and not cheapness, and to absolutely ignore competitors and their goods when talking their own. They are told, when they want a contract to go after it. So it should be with us.

I am not a slave to precedent. I care not if the most eminent dentist, in St. Louis or elsewhere, works for 75c an hour. That does not influence me in the least. I have that feeling of self-reliance that I can win out, if not in dentistry, then in some other field, of which there are so many open to a man who is neither an echo nor a rubber stamp. The cry is for men who can do things, and failure is only for those who think failure.

My friends, there are two roads lying before you, one leading to success and a competence, the other to old age and poverty. Why not take stock of yourself and determine which road you are going to follow.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular Meeting was held January 17, 1911, with the President, Dr. F. H. Zinn in the Chair.

Dr. Charles Southwell, of Milwaukee, Wisconsin, by invitation, read a paper entitled, "The field of The Compressed Air Test."

DISCUSSION.

G. W. DITTMAR:

Why the Program Committee selected me to open the discussion of this most excellent and valuable paper, I cannot understand, especially when I compare my ability with that of each of the "brilliant lights" who are to follow me—unless possibly it be the fact that I assisted Dr. Bentley and Dr. Southwell in some minor details which helped to produce the interesting and instructive, though to a degree, somewhat confusing results given us by our honored guest and essayist this evening.

Dr. Southwell certainly merits not only our applause but our gratitude for this timely presentation. The immense amount of time and labor that he must have spent in this production can hardly be realized, unless you were placed in a position as I was, to keep in touch with the various stages of its development.

The preparing and perfecting of a more delicate testing apparatus, producing the numerous pearl and steel matrices, the immense amount of correspondence necessary to conduct a correspondence clinic of the necessary magnitude, the numerous readings and tabulations of the tests taken; his individual efforts in producing additional tests, and then the writing of the paper. And while as he has intimated, this can only be considered the beginning of what will lead to an analysis of a seemingly very complex and confusing subject, especially as it applies to amalgams and cements.

He has turned on a searchlight from a new direction, by means of a simple and telling test, that can be used by any one that is of an investigating turn of mind. In the abstract, however, the result of the present series of tests is to my mind conclusive evidence that we are doing many things poorly that we previously felt sure that we were doing well and that our materials and technique need to be still greatly improved.

When I first read the paper I somehow felt that per se I could easily discuss it in eight minutes—the time limit set by the program committee—that it was simply a statement of facts, the result of an investigation and hardly discussable, but as I studied and analyzed it more, it seemed to teem with points of a discussable nature.

I will not, however, attempt the consideration of a number of important elements, that I feel will be more ably discussed by those who are to follow me, and will simply mention a few points, without much argument, for I am in a hurry to get to those "discomfitting 'divel-up-ments'" referred to in the paper regarding my experience with gold inlays.

These few statements that I wish to make are viz: That in my opinion the compressed air test has a wide application that every dental college and Dental Society should have an apparatus, because it is a simple and effective means of demonstrating where the weak spots are in some of our materials and technique.

That pearl used for matrices has been proven by the test given, to be a very good material for the placing of gold foil and amalgam fillings. As regards cements and inlays—whether it is in the pearl, its action, if any, on the cement; or whether it is in the cement itself, but the fact remains, that in the tests I observed, the cement in several instances failed to properly crystallize. That I criticise the cavities submitted for filling because of their shallow depth compared with the diameter. If they were deeper by about one-half the present depth, the proportion would be better. That the exact and identical conditions so anxiously desired by the essayist did not and under the circumstances could not prevail in the placing of the amalgam fillings and gold inlays; in that the temperature of the rooms of the different operators, the humidity of the atmosphere and other things not being identical, would have, in some slight degree, some bearing on the results obtained. However, I do agree that from a practical standpoint the tests as made reveal the necessity of better materials and more careful technique.

Think of it, Doctor Southwell found in the first series of tests on amalgam fillings that out of nine fillings placed by experienced operators, in simple cavities where every advantage was to be had, that two of the fillings leaked at four ounces pressure, that each of six fillings leaked, at from one to four points, at one pound pressure, and then there was that lucky one placed by Doctor Cooledge that did not leak at sixty pounds pressure. The unreliability of our amalgams was never more forcibly demonstrated except in that grand work done by Doctor G. V. Black some years ago.

Regarding gold foil, I wish to enter my objection to the "time" element being considered in the ratio that it was, in the gold filling test and also believe that the same judges that passed on the margins of the gold fillings should have passed on the margins of the cavities before they were filled, and now as I have only touched a few high spots in coming down through the paper, I have reached the gold inlay, but my time is so short that I can only be very brief.

The four inlays that leaked were made as carefully as I could, and set with standard cements with all precautions. The cavities being small and very shallow and the essayist wishing identical conditions, as much as possible, I made the inlays and cemented them without having altered, in any way, the wax model or gold casting other than to clean and polish the latter.

I found it next to impossible to get the inlay to place properly with the cement just a creamy mix, that with considerable pressure and tapping on the inlay with an orange wood stick and hand mallet, I could get it down fairly well, but not exactly "home."

I noticed too that when I would stop pressure on the inlay, while forcing it to place, it would be *pushed out* of the cavity a trifle, I would push and tap it back into position, burnish the margins and let the cement harden, finally polishing it.

No cement would show to the naked eye, on most of them, but the magnifying glass would of course show a fine line around the inlays after they were polished.

After repeated failures, I became considerably interested and really "glad I had gotten into it," as the essayist stated.

I reasoned that my failures were caused to a great extent by air caught between the cement on the inlay and the cement which lined the cavity, for I always have my assistant coat the inlay with cement while I place a coating in the cavity—that the air caught, as some always is—likely did one or two things, viz: That the small air bubbles caught, in escaping from under a tight filling inlay might make a little channel leading to the surface, and second that if the air did not escape it would be compressed under the hand and mallet pressure, and when the pressure was relieved would slightly lift the inlay providing the cement had not crystallized enough to prevent such movement. I now decided to do on the next trial what I always do in a practical case, and that is to relieve the wax model on the cavity side enough to allow for a fairly thick bed of cement, and thereby get a more perfect fitting inlay at the margins and also a better surface for cement attachment.

I also kept pressure on this inlay while setting it until I was certain the cement had become quite hard.

This inlay did not leak at sixty pounds pressure, though I used the same cement in the same way that I did on three of the previous inlays.

Dr. Roach was successful the first attempt, which I learned after my final result, he informed me that he also placed considerable pressure upon his inlay while the cement was crystallizing.

I regret that time did not permit me to make a few more tests to verify my last technique, and also that some of the other men who were requested to contribute to this effort did not do so. However, I have further convinced myself that relieving and roughening the wax model, carefully keeping away from the margins by about one mm.; then keeping considerable pressure on the inlay until the cement has crystallized enough to be hard, are important factors in the proper placing of gold inlays, and in conclusion will say that I still have much confidence in a good gold inlay.

DR. G. V. BLACK:

This discussion should be carried on mostly by men who have been engaged in the work, but I will say just a few words.

To me I think this means perhaps more than it does to the most of you. When I was investigating amalgams in 1891, 1892, 1893, if fillings like these had been made you could blow your breath through almost every one of them. Some men of national reputation have made fillings, and sent them to me for examination. These tubes were filled when they came to me, I turned them up side down, and the fillings fell out in my hand. The results given here tonight would have been impossible then, and if we can have reports that show as much improvement in the next fifteen years, we will begin to have good amalgam fillings. But this apparatus and the work that is being done say still more to me than this. I would like to ask Dr. Southwell to answer one question, if he can answer it yes or no, or he can answer it in a different way, namely, how many times have you seen bubbles of air come through the enamel or cementum of a tooth that you are sure was not checked in the experiments?

Dr. Southwell:

I cannot answer that question clearly as to the bovine tooth. As to the pearl, a few of them have leaked through the body of the matrix.

Dr. Black (resuming):

Now, as to the question of physiology and pathology, about which the world has been inquiring for many years, first, in the make-up of a tooth, what is the physiologic action between the cementum and the dentine, or between the enamel and the dentine. This experimentation says none—it is an important question. There are a good many other questions which can probably be answered in a definite way by tests of this character. That we have had a good many gold fillings leak, I am not surprised. The technic of amalgam is more difficult than the technic of gold, even if you have good amalgam. To get good amalgam is quite another question. We can have good amalgams without difficulty whenever the profession wants them, whenever they demand them, we can have them. There is no question about that at all.

About the second reading I can almost pick out the fillings that leak. I know that will occur with a good many of the better amalgams on the market. That must occur.

With these few remarks I want to thank Dr. Southwell for what he has done.

Dr. C. N. Johnson:

This society is under special obligation to Dr. Southwell for the painstaking efforts he has made on this important subject. He had gone into endless detail, and those who have followed up this work carefully can realize the amount of work he has put upon it, and we are indebted to him for coming to us with this message. I was requested by Dr. Dittmar to confine my remarks to the question of gold fillings. The essayist has truly said, that some of the fillings which showed slow leakage would probably have done good service in teeth in the mouth. There is this feature about these tests: we must recognize that while they are immensely important and show us the physical characteristics of the materials, we are using, yet they are not perfect tests of a man's ability, and I say this on behalf of those who entered into the tests. It is not an index of a man's ability to save teeth in the mouth. I mention that particularly, because of the fact that at the recent clinic of the State Dental Society, one of the operators who stood very low in that test was a man who has been eminently successful in saving teeth for his patients for very many years. At the same time, these tests give us an insight into the physical properties of these materials, and in that respect they are of immense value to us, and we should not ignore that phase of the question in considering the subject.

The essayist has said that the factor of time was an important matter to consider, and that is true, but it is not so important a matter, and I believe with Dr. Dittmar, it should not have been made so prominent in these tests as the essayist has made it. A difference of five or ten minutes in the insertion of a good filling is not a very material matter, if we consider the possibility of failure in a short time and success in the longer time. And so, while I believe an operator should learn to manipulate rapidly, I do believe that it is more essential that he should first learn to manipulate skilfully, and then he may increase his speed afterward. I have felt that in these tests not only in this work, but the tests that were made at the state society, the essayist was inclined to place too much significance on the difference of two or three minutes in the insertion of the fillings.

The question of specific gravity was mentioned by the essayist, and while it is claimed to be impractical to consider specific gravity in such tests, we must remember that specific gravity is an important thing when it comes to the saving of teeth in the mouth, in molars and bicuspids, where the stress of mastication comes prominently on the filling, and unless we do have relatively good specific gravity, we will have the filling crushed out of form, and if that is the case, it will be very likely to leak, and a leaky filling will lead to failure.

There are many things in the insertion of a foil or amalgam filling to be considered, and all of them are important, some being more important than others, but there is one thing that is very important, and that is to have sufficient density to the filling so that it will stand up under the repeated stress of mastication.

One of the findings of the essayist pleased me immensely, and that was the greater uniformity in the behavior of gold than in the behavior of any alloy we can buy. I have had the feeling all along, as many of you know, that there was no one material in all of our filling equipment so uniform in its behavior day after day as gold foil, properly manipulated. A man may take amalgam, and do his very best, yet he cannot be certain of obtaining uniform results in the same way that he can with gold foil. Gold foil is the king yet.

Dr. Don M. Gallie:

I want to compliment Dr. Southwell on the splendid presentation of this subject, and while I do not consider it very discussable, on account of the nature of it, at the same time it must be plain to everyone here that the principal thing we must consider in the manipulation of filling material is the technic; that it is not so much the fault of the material as it is the operator, and the manner in which he manipulates it.

The essayist spoke of the use of pearl matrices and the findings he has presented show that nothing better will do for this kind of demonstration than this material; while in filling with amalgam a steel matrix may have done better than the average. In some of the cases, on the average the whole test is made in a pearl matrix. Dr. Southwell furnished an additional matrix for any one to use in any way he saw fit. I filled a matrix with gold, and in trying to push out the screw, it only came out after considerable pressure.

Dr. Southwell:

Did it break?

Dr. Gallie:

It did not break. I filled a pearl matrix with amalgam, and could not take it out until I tapped on it with a steel hammer, showing that the walls of the cavity were very firm, but whether there would have been leakage or not I cannot say.

Dr. Southwell speaks of the unfairness of comparing a filling in a matrix with gold with the filling of a tooth in the mouth. I agree with him. In the average work, there is a better advantage in the mouth than with a shallow cavity. I was impressed with a statement Dr. Southwell made to the effect that he knew of some gold fillings inserted in the past week which would stand one hundred pounds of pressure. The difference is undoubtedly due to the manner in which cavities are prepared today, as compared with formerly, with parallel walls, extending buccally and lingually in all directions, with a square base, and with our improved methods of cavity preparation it is possible to put a filling in a cavity as well as with a pearl matrix. To me the more important thing is adaptation. I do not care about time. Gold, when adapted to the walls of a cavity, will save teeth from recurrence of decay, provided other things are equal in the shape of contour and contact. This operation depends upon the gold used. Some may have used mat gold, moss fiber, or pellets. In my case I used a pellet for the little braces screwed in the bottom of the matrix, and that depends largely on the kind of gold used.

As to amalgam, like other things, it improves with age. That is our only salvation—it improves with age. The principal thing is technic. Proper manipulation of the material will demonstrate by these tests that the same alloy used by different men acted differently. So it is with cement. There is a difference in the mix, and these tests also brought out the point of difference in placing inlays under pressure. Dr. Poundstone, at Rockford, called our attention to the fickleness of cement when he demonstrated that in ground glass, when mixed and brought together under pressure, it showed islands under crystallization, and so it acts under the inlay. We find in these inlays islands of crystallization and thin bare spots, allowing leakage to come through. We cannot be too careful in our technic. Things we think are easy are, as a matter of fact, very difficult.

DR. LESTER BRYANT:

I have been instructed this evening to speak on inlays, but there is not much to say. One of the inlays I put in stood, and the others did not, but I do believe this: I cannot make up my mind that the fresh water pearl is a matrix for an inlay, because the cement is not made to stick in a fresh water pearl matrix. Cement is made for a definite purpose, namely, to stick in a tooth, and that tooth is porous to a degree, whereas fresh water pearl does not have that porosity. Cement is made to set in moisture, and these fillings were probably not placed in moisture when they were set. Where tests of this kind are made, if we are going to set a filling in fresh water pearl, the ordinary glue is better because this is made to set on substances of that kind.

Another thing these tests showed me was this: A good many men claim that we cannot set an inlay twice alike, on account of the cement not being mixed uniformly. The tests that were made with amalgam were about as fickle as those made with cement, and I could mix the cement more uniformly than in placing an amalgam filling.

I have no doubt that the bovine tooth would be an ideal thing for a matrix, and I would like to see the test carried on for inlays, using bovine teeth.

There is one other thing I would like to say a word or two about, and that is with reference to cavity preparation. I saw a cavity which one gentleman sent back on account of the filling coming out during the setting, and the filling in that cavity I would not trust in the mouth for ten minutes. I believe if a patient had such a filling as that put in a tooth, it would come out before he got down stairs. (Laughter.) The cavity was very shallow. There was no definite set to it. When the filling was put in you could rock it anywhere. You could not lock it in.

Dr. Southwell gave the gold filling men some cement to fit their fillings, but not the inlay men.

Dr. Southwell:

The gold filling men did not have any cement either.

Dr. Bryant:

That is a different proposition, but they hammered theirs in.

Dr. Southwell:

One man put his inlay in with a vise.

Dr. Bryant:

That is because you gave him a matrix which was not fitted for his cement.

Dr. M. L. Ward, Ann Arbor, Michigan:

I am always very interested in anything which dentists are doing, and I most heartily commend the paper that has been presented to us this evening.

Dr. Gallie has asked me to talk about alloys, and I will say a few things about that. At the outset, when Dr. Southwell made a statement that there was an inherent quality in alloys which made them shrink, I wanted to ask him what he knew about it, and on what he based his opinion. But as he went along, he said one of them leaked with a few ounces of pressure. I take it from that, he was going by the compressed air test to decide whether amalgams contracted or not. A little bit later on he spoke about these amalgam fillings improving with age, and still later he spoke of two minutes in mortar improving them a little. I have gone through a sort of process of evolution during the reading of his paper, and made up my mind at the end that he had learned something as well as some of us. Since the work of Dr. Black in the early nineties, there have been plenty of alloys on the market that do not contract. If they contract, it is simply up to you. One of the biggest things Dr. Black did was to put before the profession alloys which did not contract, and they do not contract if they are manipulated properly. You will understand that when you take a big porous mass of cement or of shavings of alloy and put in some solvent, the first thing that happens is a reduction in volume. There are two substances expanding chemically, but physically there is a reduction in volume. There is a chemical expansion which goes on all the time. The biggest factor in connection with alloys is expansion. The expansion to which the best ones are liable is the thing which makes them poor fillings, because dentists do not work them half enough. There is great physical reduction in volume which takes place. The next one is a normal movement combining the constituents of the expansion. This expansion will go on, as is shown in the literature, indefinitely, or at least until there has been a thorough amalgamation of the constituents and this may pass through three or four years. There is enough data at present obtainable to show the same thing is true with the cements to a less degree; that the cements in combining go through the same physical reduction in volume. The next normal movement of cement will take place later on if one does not overcome that. This is particularly true of the sluggish cements. The lesson we may draw from this is, that the two combining things must be combined as energetically and vigorously as you can possibly combine them and get all the movement you can to take place out in the hand, and before you put the material in a tube. Do not allow it all to take place in the tube after you have inserted it and finished it down to the edges.

One word in regard to matrices. Some difference of opinion seems to exist as to the matrix. In almost all of the scientific work that is carried on today, where absolute accuracy is necessary, fused quartz, or something along the order of pearl is far preferable to a steel matrix. The latter is used because it is convenient to measure the expansion. It does not allow with the micrometer of accurate measurement of contraction, and so far as the results obtained in casting lines, measurements of filling materials, where air tests are necessary, such materials as fused quartz and pearl are far preferable to any metal.

Dr. J. N. Crouse:

I did not expect to be called on to take part in this discussion. I have put out samples of tests, and think I was among the first to put out an amalgam that was thoroughly tested. The work Dr. Black did was along the line of handling the process of aging. He and I were working on this subject at the same time. I had a professional metallurgist with me, and finally got out an alloy which would expand one to ten thousandth points, and it won't vary in a thousand ounces. There will not be a variation of a sixteenth in the working of it. After all, I think the hardest filling to make is a good amalgam filling, and yet it has saved more teeth than all other materials put together.

The great and difficult problem is a proper cement. I have done a great deal of work in that line, and I am not through yet. It is an easy matter to make a strong cement; it is not an easy matter to make a good cement, one that does not shrink in setting, and the stronger you get it the more it shrinks. That is the most difficult problem confronting the dental profession today. It was touched on here in the discussion that the weak point in all these experiments was that the cement was kept dry. It should have a moisture to it as soon as it was put to place. But with a proper amalgam, properly put together, you can measure and tell exactly what the condition will be, and it will not vary, and although a change may take place within five hours, there will be no change after that in ten years. I have twenty tubes which I have tested over and over from year to year to see if any change had taken place in the measurement, and there has not. It can be made and worked that way, but it is not an easy matter.

Dr. F. E. Roach:

I am disappointed that there are not more men who have participated in this inlay contest. I do not know why it is the inlay men do not respond as the other filling operators do. I do not know why they should back water unless it is the lack of confidence in their methods, or in the inlay method. To my mind there is no procedure of filling teeth that I undertake with any greater degree of certainty than that of gold inlays. Of course, I might put in fifty more inlays and not make them as good. But I am sure of this one thing, however, that I did not take any particular precautions with this inlay. The cavity was not changed nor was the model in any way altered. The technic followed was identical with that which I would follow in a practical case. The matrix with the inlay in place was put in a vise and slight pressure applied. I find the vise very convenient in my office, and when I want to hold two substances together I place them in the vise and hold them. I applied as nearly as possible the same pressure that I would in setting an inlay in the mouth, and with all inlays, either porcelain or gold, I have learned from observation, that when placed into the cavity they will immediately begin to rise up out of the cavity, and have to be repeatedly reseated unless pressure is maintained until crystallization takes place. There is no trickery about it. I never did anything in my life with greater indifference than when I put in that inlay, and I had the confidence it would stand the test. I do not believe there is a better filling that can be made today than the gold inlay as a universal tooth-saving proposition.

Dr. Southwell (closing the discussion):

It is getting late gentlemen, and I will be brief. Dr. Dittmar labored under a misapprehension regarding the extra pearl matrix that I sent out with the original set. This was with my compliments and to be used for any purpose. It was prepared for either gold or amalgam and not as were those sent out to the inlay operators and in adapting it to the inlay he may have been at a disadvantage.

Dr. Johnson, I fancy, has misunderstood me regarding the omission of the specific gravities of the gold fillings in the correspondence clinic. This was done, as stated in my paper, because the removal of the gold for the taking of the specific gravities would most likely destroy the pearl matrices and I would not be able to make an exhibit of them this evening. The specific gravity was not omitted, because I thought less or was indifferent about the specific gravity of a filling or the necessity for density.

Dr. Johnson, in speaking of the time, lays very proper stress on the importance of an extra few minutes or that the operator should not economize too much in the matter of time. I fully agree with him. I took twenty-eight minutes—not twenty.

Dr. Bryant, in speaking of the cavity for the inlay, implied that it was too shallow, but that did not seem to unfavorably effect the inlay of Dr. Roach. And if a general comparison was to be made between inlays and gold fillings, it would not do to give the inlay operator a deeper cavity than those for gold fillings. Neither would it do to permit a gold inlay operator to alter the cavity for the reason that the feature of identical conditions would be nullified as stated in my paper. In striving to obtain a definite basis of comparison I did the best I could under my conception of the requirements of the work.

It may be that the cavities for the inlays happened to be too shallow but none blew out. (Laughter.) I do not quite see the point made by Dr. Bryant. It is hardly fair, to bring the inlay and gold filling into direct comparison. The present tests were tentative in character and introduced mainly to lend interest to this occasion. I endeavored to bring before you interesting illustrations of the possibilities of the air test and hit it off as best I could under the circumstances.

ST. LOUIS DENTAL SOCIETY, JANUARY, 1911.

DISCUSSION OF PAPER, "A LITTLE OF THE BUSINESS SIDE OF DENTISTRY."

W. L. O'NEILL:

Judging from what Dr. Hart has just told us, I believe he is thoroughly awake to the sad condition in which we find our profession today. Recently, many of us have realized our condition.

He has been doing some thinking and has come before this body to express his thoughts which as a whole are excellent.

He has presented some old truths in a new light. He has asked us many pertinent questions which in themselves will give us something to think about. Dr. Hart says there are probably some among us who will consider his remarks "hot air." Well, gentlemen, if any of you consider it such, I am of the opinion it is this brand of hot air we need to arouse us to the realization of our possibilities. My main criticism would be, it is not hot enough to reach the greatest possible number.

The doctor states that his remarks were not aimed at the contented man; of course he means the man who is content with a great deal less than he should be, or it is possible for him to attain. Men of this calibre, we have a plenty, and I believe even such could be aroused to activity if the temperature of the "air" was raised to the proper height. The "air" that is usually circulated is so near the body temperature it is hardly noticeable. What we want is to make it just a little uncomfortable for them, and not simply warm enough to lull them to sleep.

Dr. Hart says he expects to get results through the live man, one who will grasp an idea and utilize it for his and our benefit. Of course it is through such men that we expect to get results, and if we can enlist a sufficient number of this class, we will be able to march forward at a greater rate, and carry the entire profession with us. For, if a number sufficiently large to be missed, from the old camping grounds, will go forward and find better conditions, it will be only a matter of time before word is passed along and the entire profession will be aroused and will break into double quick in a desire to reach the new camp.

The essayist says if we are real dentists, we will not have to have a line of "would-be" different filling materials, etc., etc., to sell. I do not believe we have such men in our profession—only the advertiser uses this deception and he is not one of us; he is a grafter, a highwayman, we all know it, and it is our duty to so educate the public that they will realize this. We should set our standard of quality so high that the people will realize there is a vast difference in dentists and they will go in search of quality, rather than price.

Dr. Hart says, "If you clean teeth for one dollar, you are losing money, or you are doing your patient an almost irreparable injury." I would make this statement stronger, and eliminate the word "almost."

The doctor believes the improper cleaning of teeth is one of the prime factors in the development of pyorrhea alveolaris. He may be wrong, but I believe he is right. I believe this is one of the most important operations we perform, and I go so far as to absolutely refuse to do other operations unless I clean the teeth. In one case I well remember, a man wanted some gold fillings, his mouth was in bad condition and I explained to him the condition and the remedy. He would not consent to having his teeth cleaned. The principal objection was the fee. I refused to put in the gold fillings. I told him the teeth must be cleaned; the cavities involved only a couple of teeth, while this condition of the mouth involved all the teeth. I would not let a patient go out of my office with gold filling of mine in a mouth in such condition. I would be ashamed of it; I would disgrace myself and my profession, and besides, it would look to much like setting a diamond in a mud fence.

I cleaned the teeth all right, and he paid for it.

I beileve it is a better business policy and the only thing an honest man can do to do your work well and charge well and let your patient think if he will that you are a robber, than it is to pretend to do the work and charge a small fee, and eventually the patient learns you have not only robbed them of their money, but in many instances, of some or all of their teeth.

Now do not overlook what the doctor says regarding root canal filling. Just think of the number of bridges, crowns and fillings you have removed to treat abscesses that were caused not by a failure to fill the canals, but simply because there was never any attempt made to fill them.

Now gentlemen, I do not believe we can condemn this sort of practice too severely. I know otherwise ethical men who will not say a word against another dentist doing this kind of work and I have heard them say they would not say a word to the patient about it. They claim this would be unethical. I differ with them very materially. I believe any man who knows this and does not expose the rascal, is a party to the crime, and I am here to tell you any time I have proof of such practice, I surely inform the patient that they may use their influence in downing this man. It is no sufficient that the patient finds the work unsatisfactory or "apparently unsuccessful;" they should know the difference between accidental death and willful murder. I hope some day we will be able to handle such practice in a proper manner.

Now, regarding our participation in dental society work. I do not believe a man is honest with himself, his profession or his patients unless he takes advantage of every opportunity to advance himself and his profession. Suppose you are rendering service to the very best of your knowledge and ability; this is not sufficient, unless you are keeping abreast of the advancement made in your profession. How can you do this unless you read, attend clinics and society meetings? You should at least attend your local and state society meetings, if you will not take part in debate, or give clinics, you can at least attend and encourage those who do, by your presence, and when the state meeting comes to your home town, do not try to sandwich the meeting between your patients, but reserve every day for this, and go and get all there is to be had. If you say you cannot learn anything at these meetings, you think you are an all-wise man. This is the beginning of your downfall. You may be a "cracker-jack," but there is always some one just a little wiser than you. You may live on your reputation for a while, but your light will flicker, and if you do not take warning at this and replenish the oil, it will go out and you are a dead one.

Dr. Hart has simply mentioned sterilizer; and I do not like the manner in which he has done so. He asks if we still pick the deposits from our burs and instruments instead of using the sterilizer. One would infer from this the sterilizer is used simply as a convenient method of "cleaning" instruments instead of sterilizing them.

I believe there is just as much (and more) "bluffing" going on regarding the sterilization of instruments as there is in canal filling, cleaning teeth, etc. Of course, you can "bumfuzzle" your patient into the idea that you sterilize the instruments just as readily as you can fool them about dental operations—if you are that class of man. A great number of a certain brand of sterilizers are being sold today. It is little round affair, with a metal cup about the size and shape of an ordinary drinking glass. "Sterilizer" is written in large letters on the front of this "thing." The firm advertises, this alone is worth the price for the psychic effect it has on the patient. It has this effect all right, but it does not sterilize instruments that are more than about three inches in length—for that is all the water the cup will hold. Therefore, the half of all long instruments are not sterilized at all. Some men do not even use this after every patient; many patients have told me that Dr. ——— said he sterilized all his instruments every night. Now how ridiculous this is. Would this man dare to come before this body and make such a statement?

Why sterilize instruments and not use a sterile table top, a sterile waste receiver, a sterile glass at your cuspidor and sterile towels for each patient. Do not spend your money for the sanitary cup unless you use one for each patient. They can not be sterilized except by fire. Now, do not do all this and then use the same modeling compound in a dozen different mouths.

The Doctor's questions regarding our business ability, our system, our earning capacity, and if we would hire ourselves or not, are all good and worthy of our consideration. I want to congratulate the Doctor on his poetry which covers the case very well, and I agree with him, "it 's hell."

The essayists' system of charging so much per hour, is, I believe, absolutely wrong. We will have the everlasting trouble of keeping our time and if you should take a minute to attend to the many little things in the laboratory we carry along with our operative work, the patient is uneasy. There are phone messages and little business matters you must attend to personally, then there is the patient who is able and would be perfectly willing to pay for some charity case along with his, if he did not know he was doing it. Again there is the ever unusual case that requires an unlimited amount of time. By this method, the charge would be out of reach of the average patient, but if an average charge is made, you are not losing and the patient is receiving a great benefit and the many who contributed their share, have not felt it in the least. You cannot advance your scale without a great deal of disturbance. It will not relieve you of making approximate estimates. I do not like the salary idea. It is not professional; you are not free. We should be at liberty to charge in accordance with the service rendered. The salary is the tradesmen's basis and when it comes to this, we should make application in labor organizations for membership. What would you think of the surgeon who would charge by the hour for his service? If we class ourselves with the trades, how can you ever expect our medical brethren and the public to have a proper conception of our position and worth? But I do believe we should know the average time required to perform various operations, and use this as a basis in determining our fee in much of the routine work or establish a minimum fee, but never a maximum. But the basis of our charge is strictly our own affair.

I believe we should make a charge when the patient fails to keep or cancel an appointment. Now to determine the average time required for various operations is a task. But recently a committee of ten were appointed by this society, for this express purpose. I believe this committee is large enough and sufficiently representative to give us all the necessary and sufficiently accurate data along this line.

The essayist has tried to show us the road to success. I see all through this paper the greatest requisite is better services. In this respect I believe we are of one accord. This portion of the paper and its discussion could be covered in the short sentence: Be a truly conscientious and strictly ethical man, for when you are this, you cannot be otherwise than a first class man, and with this combination the financial end will cause you little anxiety.

Now do not misunderstand me when I say ethical man. I do not merely mean a man who does not advertise. I could spend much time explaining, but I will let you judge from my previous remarks what I mean.

We hear so much about how to succeed in all walks of life. This can all be covered in a few words. That is, do not estimate success from a financial standpoint only, in every respect be a little better than the average in your chosen calling, and the farther you are above the average the greater will be your success.

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held January 3, 1911, with the president, Dr. C. N. Johnson, in the chair.

Dr. E. J. Perry, of Idaho, made some remarks on, "From Dentistry to Farming."

DISCUSSION.

DR. J. E. HINKINS:

I hardly know where to begin after hearing Dr. Perry's speech. We all love him. I imagined this summer that Enos and I were loading oats together. I spent a month on my place in Indiana and got closer to nature. It did me good. I came back a younger man and I have practiced better dentistry than before. While Brother Perry has drawn a beautiful picture of the West, we have two or three analogies in the East. While he was talking on the fertility of the soil and the chemistry of the soil, I was thinking along the same lines. I have given the subject of chemistry of soil not a little study, and when he went on to speak of the fruits I thought I might say something regarding them. I do not know whether Perry knows it or not, if he does he did not say anything about it, but I was reading a short time ago the statistics to the effect that for every acre of fruit that was raised in Colorado or west, there is $100.00 tax on that acre for transportation, and if all fruit set out yielded 50 per cent, we would have more fruit in the United States than we could consume and we would have to transport it to other countries. On the other hand, within the last three or four years there has been a great deal of work done towards rejuvenating old orchards in the East, and I see now that orchard surgeons have been trimming trees in the East through Connecticut, New York, Delaware, and other states, taking old apple trees and trimming them and fertilizing the soil very largely with the slag from the steel mills in England which is rich in calcium phosphate and in iron phosphate. Our iron ores, or rather our slags in this country, are not as rich in calcium phosphates or iron phosphates as in England, and that has been brought to this country largely for a fertilizer. It does remarkable work in improving old soil in the East as well as improving orchards, and these orchards have been bearing abundant fruit and giving wonderful results. I saw an article in the Saturday Evening Post a short time ago to the effect that the fruit raised and sold in New York and Boston, compared favorably with the prices you get for your western fruit, and the flavor of the New England fruit was 100 per cent better. So much for the East and so much for transportation. I will now touch a little on soils.

A few years ago I read about soils considerably, and there was quite a discussion between Whitney and Cameron of the United

States government, and between Hopkins and a man from Madison, Wis. Whitney and Cameron claimed that the soil was just as rich today as it ever was. The other two gentlemen said it was not. The former claimed that as you get away from irrigation, the rain falling on the earth, there was continual capillary attraction; that when we got rain it went down into the bowels of the earth and as soon as the sun came out the capillary attraction was reversed, and as the water came from the bowels of the earth it brought elements enough with it to supply the wants of our crops, and thereby our soils were just as rich now as when they were virgin soils, and that the good we get from manure and fertilizers of that kind was to destroy the excreta formed by cell life, so to speak. That is to say, if you do not rotate your crops, the catalytic action of the cell of the wheat or corn would generate a certain poison or toxin, and that the fertilizer did not enrich the ground but would neutralize the excreta. That was the teaching of Whitney and Cameron of the United States government. Hopkins and the Madison man claimed that if you plough seven inches deep and take ten samples of earth as deep as you plough, in ten sections of a forty-acre field and have it analyzed, you get a certain percentage of phosphates, a certain percentage of potassium, and of nitrates and calcium, and that just as deep as you plough you absorb these elements of the earth, but the capillary attraction, as advocated by the other two men, cuts no figure because you only get these things from the depth at which you plough, and the experiments that have been conducted in the agricultural department of the University of Illinois, and in Indiana, West Virginia, Ohio, and at Madison, Wisconsin, have confirmed the reports of Hopkins. They went further and showed by actual chemical analysis that every hundred bushels of wheat takes about seventeen pounds of phosphorus; that beyond this seven inches of soil the phosphates became eliminated, and it would take the same amount of potassium, and it would take a hundred pounds of nitrogen. You get nitrogen from the atmosphere and the nitrates you would get by the catalytic action, so that the experiments they have made on our virgin soil, where they took certain sections of land, and treated them with calcium phosphate at the rate of one ton to the acre for five years, with crop rotation, in twenty-five years time the virgin soil, which originally produced sixty bushels of corn to the acre, will produce 105 bushels to the acre. The alluvial deposits have been robbed of the minerals and also of the calcium. Our best farmers today are bringing calcium phosphates from Tennessee and North Carolina, not by the carload, but by the train-load, for their farms. If you will treat an acre of poor soil with a ton of calcium phosphate to the acre once in five years, it is marvelous to see how crops build up. If you rotate this corn, wheat and oats or clover, you will have the same leguminous crops. In lots of our clay soils, which we commonly call sour soils, they are nothing more than acid. In the southern part of Illinois and the northern part of Indiana, we are very shy of calcium. We have a lot of clay, but we are very shy of calcium, about one half of 1 per cent is all we have of calcium. They have been trying to grow alfalfa in my neighborhood in Indiana, and they have all failed with the exception of one farmer by the name of Robins. He had seven acres and has a fine crop. I asked him how he was able to grow alfalfa, and he said that he spread on five tons of manure to the acre and he had been getting two or three cuttings a summer: about four tons to the acre or a total of twenty-eight tons. Most of us have been spreading about two tons to the acre on an average, and last summer we got a small crop of alfalfa. In that seven or eight acres there is two and one half per cent calcium carbonate.

DR. PERRY:

The rest is four and one half per cent.

DR. HINKINS:

You cannot grow any leguminous crops on a sour or acid soil, so you must put on carbonate of lime to neutralize the acid, and when you neutralize that you get all the way from 1 per cent to 1½ per cent, and according to the state chemist we can expect to get alfalfa to grow. There is about half an acre on which I put carbonate of lime and got a very good crop of alfalfa, but in the other half on which I did not put carbonate of lime I did not get alfalfa, showing it was the carbonate of lime we used which acted as a catalytic agent in neutralizing the other elements in the earth, producing the growth of alfalfa. But you cannot get the average farmer to do that.

Another thing about calcium phosphate: If you do not have manure or a crop to plough under, it does not do any good because you do not get the formative process there. If we went into the chemistry of farming, we could follow that along for a whole evening and be entertained, but I shall not take up that phase of the subject at this time. Another thing that is very instructive to a man who does any farming is taking care of the manure. It is not an uncommon thing for many farmers in Illinois and in the West and East to haul out their manure once a year or throw it out in a pile. According to our best chemists, the manure that is laid out in the barnyard for six weeks or two months loses 50 per cent of the nourishment in it by leaching. Since the establishment of farmer's institutes in this country most of the farmers haul the manure direct from the stables to the field and are getting better results.

With reference to the physiological question brought up by Dr. Perry, I have thought about it many times, and I hope some day that I will be able to do some work along that line, and if I do not get some glory out of it I shall be satisfied that it will make me a better man. The point I want to make in this connection is this: Dr. Perry is out there by himself, so to speak, and if he wants to philosophize, let him look at his chickens, cows, hogs, horses, and he will find they eat the same grain, the same corn, the same alfalfa, the same oats, and he speaks of a hen being an egg machine; that she turns out an egg which contains 92 per cent albumin. She gets that albumin out of the same corn and out of the same oats as the other animals. If you have a good cow she will eat the same kind of food. If you feed chickens on sour milk that will increase the proteid in the eggs. The cow will eat the same grain and same alfalfa and she will produce butter fat and casein. The hog produces oleic acid and lard, all of different composition, but all these things come from the same alfalfa, the same oats, the same corn, and what is the machinery that does this, or that differentiates these different animals? It is the system you have been speaking about, and that while man thinks about these things, he does not know anything about them. And right here it would be well for me to close, by bringing this question to our own profession, as it has been found by our best scientific men that phosphorus and its combinations are so essential to the higher development of crops and fruit. It is of equal importance for the development of the teeth in man and animals, and in closing I shall say a few words in behalf of Phosphorus. Phosphorus is the Greek word for morning star, and signifies light. The element Phosphorus is closely associated with the beginning of all forms of mortal life. The nucleus of every living cell, in plant and animal is rich in phosphorus. Nuclein, the phosphorized nitrogenous constituent of the cell nucleus contains as high as 10 per cent of the element Phosphorus.

Dr. Truman W. Brophy:

I am bewildered with this exposition on the part of Dr. Perry and Dr. Hinkins on scientific lines in agriculture and horticulture, and on country life in general. I really do not know where to begin, or have not the slightest idea of what I shall say. Before Dr. Hinkins spoke I was just filled with the picture that was so beautifully drawn by Dr. Perry. I, too, could imagine I was in the valley and could see mountains on the north and mountains on the south, and snowcapped in all their beauty, and then I could see Perry around among the flowers and among the green trees and by the running streams, where the clear water came down from the mountains and made his land rich and brought to him the cereals and fruits which enabled him to buy the gold. All that was beautifully fixed in my mind and I was going to talk about it, and when Dr. Hinkins rose and began his learned discourse on the chemistry of the soil and unfolded to me a fund of information on the subject of agriculture I never dreamed he possessed, I said to myself, I thought Hinkins had a great mission. If he ever leaves off his profession and takes to farming, he should be an editor of a farming journal or paper and devote himself to the elucidation of so many of these unsolved problems in the field of agriculture, and while he was talking I began to wonder what I would do and what I would say, and I thought some time ago of the piece I cut out from a paper on scientific farming. This article is well written, but I am not going to read it to you. Here is an article on the discovery by British scientists of the microbe, the destroyer of the essential elements of the soil, and this brings up the question which was discussed first and so fully by Miller and discussed by Hinkins, Cook and others, on the ferments that are of bacteriological origin, and which have to do with the decomposition of food structure, and it is right along the same line, and here in this article it opens a new field in agriculture. It claims the first attention of scientists and is directed to the subject of ferments generally. It only shows how little we really know yet, and how little is known of the subject of bacteriology. It is just in its infancy, and by and by, when men have time and are not obliged to work until they are nearly dead before they take up their scientific studies in the evenings, when we will be able to make room for those who are scientifically trained, so that they may engage in this work, as such men should do without being overwhelmed with other cares, then we will ascertain the truth regarding this and kindred subjects along the lines of our activities. It makes no difference in what line we are engaged, whether a man is engaged in the treatment of disease, in performing a surgical operation, in studying horticulture or what not, we are surrounded by those agents we call micro-organisms, and they always play their part in any branch of this kind of work. And the man who is capable of recognizing that fact and capable of following the teachings of the masters, may accomplish something, for all men are not so constituted that they can make these original investigations to bring out the facts. If once the truth is told and made clear to us, we will be able to grasp it and take advantage of the findings of others, and then we will come more nearly, as we are trying to do in pathology, in hygiene, in all the branches of our vocation, to reaching the ideals, and we never will be able to reach up higher and take an advanced step ourselves and accomplish better work, securing these ideals by our efforts until we have become closer students of the work of the masters. It is not a new thing. From the beginning of time, and so long as we have the history of man, the masters have shaped the way for others, and all these pursuits today of men who live are being established by the leaders, by those who think the most, who study the most, and do the most to perfect whatever they undertake to do. Dr. Perry has told us that the place to think is out under the blue sky, where in the pure air and where one is filled with that vigor and physical good feeling that comes with such an environment. We know that when a man is placed in a bad atmosphere, is over-taxed and burdened, his nervous system worked up to the highest pitch, it is not the place in which to do things.

I am delighted, as I know all here tonight are delighted, to have our old friend back again. Dr. Perry, we never come together that we do not talk about you. Whenever the Odontological Society meets, Perry's name is mentioned, and it is unnecessary for me to tell you of the manner in which it is mentioned and the spirit of the occasion and the kind of fellowship that always goes out to you. You are not very far away from us. Whenever we come to this room, where we have had the good fortune to meet many a time, Perry is thought of and spoken about.

I am going to tell you something now, gentlemen, which I have not mentioned before. During all my life, since the death of my father, there has not been a period when I have not always felt that he was with me. Whenever I place my hand to one side, it would be on him, and that has clung to me so closely, and sometimes within the last few months it seems closer, and I think it is so with our friends, whether they are here or have passed on. They are really a part of us and we are not complete without them. And so in this group picture we looked at this evening the central figure in it is Cushing, a man whom we all loved so much. I do not think he is far away from us this evening. His influence will live, and the others seem almost as though they were here and were a part of us. I refer to Drs. Swasey, Harlan, and Swain, and others in that group. They were dear to us, and to them we are greatly indebted for what they did for our profession and for ourselves. They are not far away. As for Dr. Perry, we know he is a younger man now than he was. Any one who looks into his face and compares it with the expression it bore when he was struggling with his patients and confined to his office, rushing to deliver lectures, and keeping his appointments, and doing his best to carry on his work under pressure, will notice a vast difference. We see in you, Dr. Perry, today a younger man than you were then, and I feel as though you ought to be congratulated on having this great burden that you bore while here lifted from your shoulders.

I am a farmer—yes, and I have a farm right near town, only twenty-five minutes ride to it. I have some fruit on it, many fruit trees, and I tell people when I am not much account in town I am going out there and stay, and it will be a good time to do it, but so long as I am able to work and perform the duties that devolve upon me, I am not going to do it. I do not want to stop and lie down and quit. I feel as Dr. Perry does, that the only time for a man to quit his work is when he dies. He never said anything in his life truer than that the retired farmer who has so little sense as to leave his farm and live in a town or city is the biggest nuisance that anyone can conceive of. Such men are good for no one. The inclination of a man should be to get to the country and be close to nature, especially in his old age.

Dr. L. L. Davis:

I am not a farmer, so that I cannot say anything on the subject of farming. I do want to say, however, that I have enjoyed Dr. Perry's presence here this evening, and also the manner in which he has talked, and I certainly consider it a very great pleasure to have been here and to have listened to our dear friend Perry once more.

Dr. J. G. Reid:

This occasion is rather unique in dental history. I do not believe that it has been the experience of many dental societies to cut out dentistry and devote one evening to farming. I am accountable for this meeting if anybody is, and I do not believe that we have been disappoined or dissatisfied with it. We have had enjoyment out of it that will be lasting. It is a part of the enjoyment of life, to mingle with those you like.

I am not going to give you a dissertation on farming. I like it. I like to be around a farm every day, if it is possible for me to do so, and I hope our Heavenly Father will premit me to enjoy a part of my later life on a farm. Were I to live to be a hundred, I would like to spend the rest of my time on a farm.

Gentlemen, there is just as much a pathology in farming as in looking over the pathological conditions of the oral cavity. When you understand the pathology of the soil you have solved the secret of farming, and you will never understand the pathology of the soil until you fully understand bacteriology. Anyone who reads scientific articles, or has access to them, will soon be convinced of the philosophy of that argument. It will convince the most skeptical, and if that was pursued along the lines of bacteriology and pathology we would have a greater percentage of successful farmers in this country than there are today. As an illustration of what the pathology of the soil may be, I will give you an illustration. It comes to me from reading the pathology of the soil. The title of the article was "Tired Soil." These farmers are all tired. The ground is all tired. Why is it tired? It has simply been eaten by bacterial ferments. That is all it is. The ground has been cultivated, recultivated and recultivated until the ferments of that particular plant have so soured and disrupted the soil that it will not produce. These little experiments have been carried on by the government, demonstrating this to perfection, and anyone who reads government statistics and government books, and they are given to you for the asking, will find that these experiments are most interesting. Our life work as dentists is not filled with any more enjoyment as a study. There is nothing of greater importance to humanity. It is beginning to be a great problem in this world's history, this question of consuming and producing, and somebody has got to do it, and it is only evidence of stimulation in the direction of the producer instead of the consumer that we are interested in. This little illustration is from experimental work on an agricultural farm that has been conducted for a number of years, where a portion of ground had been continually cultivated for years in potatoes, nothing else, and it got so that a potato would not grow. A potato would actually rot if put into the ground, and what was the result? The result was the ground was filled with the waste products of microbes that were produced by that vegetable. It killed itself, and this same process is carried out through the processes of the animal and the human economy. But if you sowed that acre of ground in rye it would flourish beautifully, simply because it got the waste product from that plant and utilized it for its own plant, and after a year or two it was planted back into potatoes. The potatoes grew just the same as they did in the virgin soil. These potatoes came back and produced their own form again. Now, that soil where these potatoes were grown could have been washed. Some of it was washed in hot water, and the same soil, put back, grew the same potato next year. The same system of experiments has been conducted in grain and the result found to be the same. The product of plant life is acid just the same as the waste products of the microbes in the human economy, and hence the soil becomes tired and it wants nourishment of some kind to destroy the acid and then it will be productive.

Dr. F. E. Roach:

I am here this evening contrary to the advice of my physician and my own best judgment. I ought to have been home and in bed, but I do not know of any other one thing that would have brought me out tonight but the love I have for the guest of the evening, our good friend, Dr. Perry. I have always enjoyed the association of Dr. Perry while in his professional career and our associations professionally have been an inspiration to me. He has been closer to me than almost any other one for many reasons: I have loved him for his character, his personality, his sincerity, and his loyalty to his profession, his good-fellowship, and his indomitable and everlasting optimism. It has been an inspiration to me many, many times. I am delighted with the fact that we are neighbor farmers. I was born and raised on a farm myself, and the longing for that life has never left me. I have enjoyed my career in dentistry. I have given the best of my life to my profession, and while I have enjoyed it, it has not had that same degree of pleasure for me that I got out of my farm life, and I hope some day to be able to return to the farm and spend my later days, and I hope that I will not be so long in getting back to the farm that I will not be of some use when I return to it.

It is a pleasure to see the improvement in our good friend Perry which the farm has made in his physical makeup as well as, I believe, in his moral and mental makeup. He was always a student, and he was always in the front rank of the profession of dentistry. He is studying horticulture. He is making a close study of agriculture. He is making a close study of animal industry, and we know from the fact that he mastered the various departments of dentistry, having a comprehensive knowledge of them, he will do likewise in his present field of work. I have seen some of the steps he has taken in his new field, and it will not be a surprise to me if he does not step still further than the mere farm life, that is, I believe that he will, in his present adopted state, become one of our law-makers possibly. I believe he is gifted with that ability. Idaho is a new state and a progressive state, and I believe he is progressive and aggressive enough to make a good representative of Idaho, and not only of our state legislature in Idaho, but in the congress of the United States. (Applause.) There is, no doubt, gentlemen, that there is a great field, a great work in the Department of Agriculture for just such men as our friend Perry. There is a great work to be done. It is a world's work, and there is no subject today that is of more universal interest, that is creating more universal attention than that of the farm. Almost any paper that you may glance over, you will find some article almost daily upon the question of farming. It is an economic question of great importance, and while we regret and realize the loss to us as a profession in the loss of our friend Perry, the world is not losing him. We are not going to lose him, the world will be benefited, and the farmers of the State of Idaho are going to be benefited by his removal from us as a profession to that of the farmers of that state. I believe this sincerely, because he is taking an active interest. He is taking an active part in the progress of that country, and we believe that he will do for that particular work what he did for dentistry.

I do not know, Mr. President, that I should say anything further, but I want to say to Dr. Perry, I have not had the pleasure of being associated with him as long as many of you in this society, but I feel otherwise that my associations have brought me in close touch with him, or in as close touch as any of you who have known him so long, and I am indeed glad to be permitted to be here this evening and assemble around this table with him once more, and we hope to see him many times more, because I believe within a few years, when he gets his farm in better shape, he will bring to us a few boxes of nice apples, and some beautiful potatoes. There is no country on earth that can produce better apples than we can raise in southern Idaho. He can bring us nice boxes of apples and potatoes and a few other things that we cannot ourselves raise so well here in Illinois or in this section of the country. The East cannot do it. It is not in the climate nor soil to produce apples that can be produced in the great northwest. It is one of the physical impossibilities. The apple of the Northwest has the perfection of color, form and keeping qualities, that commands a top price on the market. We hope some day that Dr. Perry can bring to us, which I am sure he will, from his own orchard some of the products we cannot raise in this section of the country.

Dr. J. H. Woolley:

I think it was about a hundred years ago when Commodore Perry in all his enthusiasm fought the English and sent word to General Harrison to the effect that we have met the enemy and they are ours. We have met our friend Perry tonight and he is ours. I am very glad he is ours tonight.

We have been very much edified by his dissertation upon farming, and it must be a joy to him to substitute the chemistry of the soil for the chemistry of the oral passages. I hope that in his study of agriculture and horticulture, he may turn out to be another Burbank, for there is evidently opportunity for him in that direction. I think it would be a great thing for our people instead of flocking to the cities to go to the farm districts. England today is adding somewhat to her decay because of her people flocking to the larger cities. During the Boer war, when a levy was made for soldiers, the percentage of men that were examined that were total failures physically was very great, and it was accounted for in this way, the men that were in the cities were becoming degenerated physically and becoming impoverished, and that was the occasion of so much poverty, while the farmers were smaller in number and the total amount of product of the soil was less, a great deal less by a large percentage than during many decades since or previous.

I am very glad to have been here tonight, and feel it has been a profit to me, and hope that we will have the pleasure of meeting Dr. Perry again. We often think of him, and I have wondered whether it was not a fact to which Dr. Brophy has referred. He spoke of his father, saying that he had a feeling of his presence which had been with him all through his life. I have had that same feeling in regard to my mother. She died when she was young, about 39 years of age, and it seems that she was a monitor to me. If I thought of going into this thing or that thing, a certain presence either encouraged me or discouraged me from so doing, and so I think we are all bound together in a way of which we do not know. Our thoughts are sent telepathically, and we will get a certain response in the way of the feeling of the presence of this one and that one, and as Hamlet said, "There are more things in Heaven and earth, Horatio, than is dreamed of in our philosophy."

Dr. George W. Cook:

I wish I could talk like Dr. Perry. I wish I could think like him. Sometimes I wish I could act like him because he is a good actor, a good thinker, and a good talker.

Dr. Perry spoke of environment of the animal, and how an animal could be made to produce beef and butter fat, and all these things by environment. We are largely dentists by environment. If we were isolated from the enthusiasm and the courage of other men, possibly we would be mighty poor dentists. Those fellows that have isolated themselves from books on dentistry, from the literature of dentistry, from associating with dentists, are hardly fit to be called dentists. Perry has not disassociated himself with dentistry but he is taking a little broader view of the things that are in the world, and nothing is made, and nothing is produced on the face of the earth by haphazard methods. There is a law that governs growth and the development of plant life and animal life. There is a certain law you can see operating in certain chemical forms. There are certain chemical elements which produce certain vegetable ferments or animal forms. The consequence is, we know so little of just what we are capable of doing because we do not know enough about the fundamentals that underlie the whole subject.

Farming to my mind is the greatest science in the world today. There are things that have been produced which we look upon as wonderful in art and invention, in literature and in science, things that have been carried out and made wonderful because they have been handled by scientific men, men with scientific training along a definite line, and farming is one of them. Let us take the subject of bacteriology alone. All the nitrogen that there is in the earth is the product of bacteria. It is the elaboration, it is the conservation, the product of bacterial action. We can have nothing without some chemical rearrangements of the elements that are here. When we take up the subject of life, the chemical side of life that we know nothing about, it is composed of a few elements, and those elements are simply transformed from the earth to the vegetable, and from the vegetable to the animal, and from the animal to man, and then reversed back again, and that goes on through a cycle of rotation, constantly forming and reforming elements and compounds and complex compounds, so complex that the most delicate chemical reactions have not been able to determine any of them to a certainty, so that if I were going to give my friend any advice on farming, I would tell him to take up some particular line of farming, some particular study in farming, and follow it to an ultimate conclusion. One cannot go into stock breeding and know all there is about it, and at the same time raise apples. On the other hand, he cannot raise potatoes, corn, wheat, alfalfa, and hogs. You have to take up some particular line. If you like stock breeding, take up that and study it. Other things are subservient to that. If you are growing potatoes or growing general products, they are secondary in a way to that. Utilize that knowledge for the carrying out of the breeding process. If you are interested in potato-growing or alfalfa-growing, study the seeds. Study everything pertaining to that, and everything that is known on the subject. Until you familiarize yourself with all that comes to you in your particular line of work, everything that is done will be only a secondary consideration, but yet an important part. The pathological phase of this subject is something that appeals naturally to me. My earliest trend in scientific fields was in that direction, and I believe there is more in a single cell than can be discovered or worked out by this universe in twenty-five generations yet to come. There is more real scientific knowledge to be gathered from the single feather of a fowl than all this world can work out for many generations to come. The coloring of the feather on a fowl or bird, chicken or goose, or duck, is a chemical process or combination that is so interesting and so complex that science has not as yet told us all about it. So while I, like the rest of you around this table, regret the loss of the genial face of Dr. Perry, and regret the loss of his optimistic personality that Dr. Roach spoke of, yet while we have sustained a great loss there are thousands of people that have been greatly benefited. I know they have been benefited. There cannot be anyone who is not benefited by knowing Perry. It is a pleasure to be here and to know Perry as long as some of us have, and to know him as I do has been one of the great pleasures of life. When he was telling us about the snow-peaked mountains, I bowed to Dr. Johnson and to Dr. Reid, because I knew I could pick out in the moonlight the mountain he called Reid. Dr. Perry, your personality and your good-fellowship often hover around all of us, and we are glad to be here with you to see you, to hear you, to feel you, and taste you, all sweet and nice. I am glad to have you here.

Dr. C. N. Johnson:

I simply rise to pay my tribute to Dr. Perry. Somebody made the remark a few years ago that he felt sorry for the man who was not born in the country, and I supplemented that remark by the statement that I always felt sorry for the man who lived in the country all his life, and I meant that, and there are many reasons for so stating. I think most of the farmers present here tonight will appreciate the force of the statement I am going to make, that farm life is not all poetry by any means. Farming is different from what it was when you and I were boys together. I doubt if there is a man sitting around this table who, while he has talked in a flowery manner about the beauties of farm life, would like to go back to the drudgery of farm life as it was in those days. We are likely to take too rosy a view of farm life. It is beautiful in many ways, but its hardships, its isolations, have been the cause of more suicides among farmers than any other class of people in the world. It has not been entirely due to environment; it has been due to one thing that is the bane of the world, and that is lack of education. Farming has been followed with less intelligence than any other calling that had the possibilities in it that farming has, and the hope today is that there is going to be put into the operation of the farm a degree of intelligence along scientific lines that has never obtained in the history of the world, until now, and it is to result in a regeneration of society. What the farm life has lacked in the past is the lack of community sentiment. And I tell you, we do not get much development among humanity unless we get community sentiment. That is the most hopeful feature of farm life today, aside from the scientific development of ideas and principles that make for the best there is in farm life.

I could tell you something about farming that is worth while. I could tell you something of the other side of farm life. You men have all talked very learnedly about farming this evening. There are few of you who know very much about it. I have been there on the soil, but I am not going to talk about that phase of the subject.

I want to say just a word about Dr. Perry. Perry has been to me one of the dearest friends I have had in the dental profession, and Dr. Perry, that is saying something, because I believe the dearest friends I have on earth, aside from my own family and relatives, are in the dental profession. It is a pleasure to me to know Dr. Perry has an environment in which he is developing as rapidly as he is. Dr. Perry is growing today faster than he ever did before. He is entering the profession of agriculture just at a time when there is the greatest development in that profession that there has ever been, and he has the brains and the adaptability to take advantage of that development, and he is developing just as rapidly as the science is, and I think it is a glorious thing for him, it is a wonderful thing for us to know that he is doing a useful work out there in the west, and that his presence will be felt in the future, and that his work will always be for the uplifting of agriculture as his influence in the dental profession was always for the uplifting of dentistry.

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DR. PERRY (closing the discussion):

I want to express my feeling of appreciation for the kind sentiments that have been uttered this evening about me. I do not deserve them. You have overstated the matter. I do not overstate it when I tell you of the feeling of love I have for this society and its members. I was a member of this society so long that it is hard for me to shake it, and I am not going to shake it. Some one has said I was optimistic. I am glad to be an optimist, and I hope I shall never drop my optimism. I believe every man should be an optimist. I have one thing to say, however, in favor of the pessimist, and that is this: He is the only man who, when you give him a promissory note. thinks he will never get it, and I like him for that. (Laughter.) The world is being moved by optimists. You cannot point to a single man who has done anything in the world who has not been an optimist, and the great teacher of us all, the most blessed of men, the greatest man that ever trod the earth, was also the greatest optimist—the great Galilean. My friends, optimism is a duty. It is not my nature to be pessimistic. I see the sweet side of things always. It lifts the clouds of despair for me and lightens all my work, and I would a great deal rather hear some fellow say I was a fool ten thousand times than to be a pessimist. Of course, a man may carry his optimism to such an extent that he would be foolish about it, but that does not mean he must be a pessimist. The optimist is a man who believes, and the pessimist is a man who does not believe.

Now, about the apples, and all good naturedly. Apples raised under scientific irrigation compared with the best product raised in a rainfall country, under the microscope will show just as much difference in the texture of the skin as there is in the texture of a piece of silk and a piece of cheese cloth. That is a fact.

About the production of apples. This has been a good year for apples. Payette Valley, a little west of me, has received a million dollars for its apple crop. A little east of me there is an apple orchard which has been revivified. It was planted some twelve years ago. The owner had done nothing to that orchard since it was planted up till last year. He got a scientific pruner and cut the trees so that the sun could shine into the trees. You cut out the center of the apple tree to the trunk. That is the scientific way of pruning. You can get personally acquainted with every tree—

the real horticulturist does, and there is a way of watering a tree so as to coax the roots out right to make the root system. He pruned the orchard last year and sprayed it. He told me this personally. He had seventeen acres. He sold seventeen thousand dollars worth of apples from that orchard this year. While we have had a great apple yield in the Northwest, yet the production was one hundred thousand cars short of the bumper crop of 1896. There is no danger of the overproduction of first-class fruit. You can scarcely buy a decent apple here in Chicago. There are very few of them sold here. You can remember the time, not many years ago, when everybody said that the orange business would not be worth paying the freight, but the orange business is better than it ever was. Our orchard products are going to Europe. The markets are in London, Paris and Germany and farther east. The freight question is a serious one with us. The Pacific slope in my judgment in time will more than equal the Atlantic.

I am very sorry for the man who cannot gain inspiration from his occupation in life. Any man who cannot gain inspiration from his labors is a menial cuss. I have made this statement a good many times—I do not know whether it is true or not, but I have reiterated it—that the successful business man is a hog, as a rule. He has got to be a hog, and as Herbert Kauffman has said, the fiber of this man is egotism, and I guess it is so. A certain amount of egotism is a good thing.

I want to thank you, gentlemen, for all the kind things you have said about me. I thank you for the kind sentiments you have expressed. You have overstated some of the things you have said about me. There is one thing which you said that is true, and that is, I am not going to quit growing. If I thought I was not going to be of some use to humanity, and was merely accumulating dollars to live, I would not enjoy my work. I will tell you one thing; I will follow the fellow who is leading. I will do something to keep the flag up. Again, I want to thank you for all the kind things you have said about me.

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EDITORIAL.

MUNICIPAL DENTIST FOR CHICAGO.

Through the influence of the Health Commissioner of Chicago, Dr. W. A. Evans, the council has appropriated $1,500 per year for the employment of a dentist as a regular member of the Board of Health of the city. This is a step in advance so far as civic recognition of dentistry is concerned, and it means much for the future well-being of the children of Chicago. The first appointee to this office, which is termed supervising dental surgeon, under a civil service examination, is Dr. Frederick F. Molt, and a better choice could not have been made. Dr. Molt is thoroughly equipped for the work through his connection with the free dental dispensary at the Ninety-third street school, and he has a better knowledge than most men of the urgent needs of such work.

His greatest usefulness will be in co-operating with the Public Service Commission of the Chicago Dental Societies which has for its object the supervision and care of the teeth of the poor children in the city schools. Funds are now being raised to carry on this work, and in the next few years we hope to show the world what can be done by proper effort along these lines.

We beg to offer our congratulations to Dr. Evans, and to Dr. Molt, but particularly we wish to congratulate the city on this evidence of its progressive spirit.

THE ASSOCIATION OF DENTAL COLLEGE FACULTIES OF CHICAGO.

In June, 1910 there was formed in Chicago an association which has for its object the betterment of dental teaching in this city. As its name implies, it is an association of the teaching staffs of the three dental schools of Chicago, organized for the purpose of studying the most effective methods of teaching in dental colleges, and for mutual improvement. The association was first suggested by Dr. T. W. Brophy, and it bids fair to add much to the effectiveness of teaching in all three of the Chicago Dental Schools. Meetings are held at intervals during the college session, and at least two meetings are planned between sessions, one immediately preceding the course and one following. At these meetings a paper is read on some phase of college work and this is freely discussed. The meetings are held around a banquet table which lends sociability and fraternalism to the event, and the benefit to the members, aside from the social features, cannot be overestimated. It is seldom that a more congenial and enthusiastic body of men ever get together than are seen at these meetings, and we predict for the association a wide field of usefulness not only for the teachers themselves but through them to the entire student body. The president of the association is Dr. G. V. Black, and the secretary Dr. G. W. Dittmar. It is of course understood that dental teachers from other schools are cordially invited to attend the meetings whenever they may chance to be in Chicago.

THE EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 8.)

My Dear Boy:

When I began these letters I promised to be frank with you, and now I am going to tell you that I do not believe a final examination to be a real test of a student's ability to go out and properly serve the public. Unless you have applied yourself during your entire college course the information you cram into you in the last few weeks before examination will not be of much benefit to the public you are about to serve. But with our present system final examinations seem necessary and it is therefore well for you to prepare for them by quizzes among yourselves and by a general review of all the subjects connected with the curriculum. This is particularly true of state board examinations which usually follow college graduation.

And at this point let me say something about state boards. They are composed mostly of human men. Some of these men are of the very highest type of intellectual and professional gentlemen, conscientious, painstaking and efficient. And they are the most self-sacrificing men I know in the profession. There are others—political appointees pure and simple, of which the less said the better. Usually they do not last long, but remember it is possible for some of these men to be on some board before which you are to appear. My only advice to you is to do the very best you can in a manly, straightforward way and depend on the good men, some of whom are on every board, to see that you get your just deserts.

There is one difference between a state board examination and a college examination that must be reckoned with. Your professors grow to know you personally and they are naturally more interested in you than any strangers can possibly be. They are familiar with your trials, your struggles and the uphill fight you have had. They remember that three weeks' illness you suffered from, and the time you were called away on account of death in your family. They know that you have had to work nights to earn money enough to keep body and soul together during your college course, and they take cognizance of the fact that though you may be somewhat deficient in some subjects, you have made really wonderful progress since you entered college. They know how faithfully you have applied yourself every moment of your available time, and they know how anxious you are to do what is right by your patients. They also know that you are coming up for examination under the handicap of nervousness and exhaustion due to long hours and anxiety; that you are physically and mentally unfit to do yourself justice in a hard test. Knowing all of these things, they are naturally very charitable of you, and if in some of your subjects you come perilously near the plucking point they are inclined to give you the benefit of the doubt, and credit something to the circumstances.

With the state board it is entirely different. They may be men of the broadest sympathies and unbounded charity, but they do not know you among a hundred other candidates, and they examine you solely on the merits of what you know and can do at that particular time. They feel it to be their duty to stand between incompetent men and the public which they are sworn to serve, and if you fail to measure up to the standard which they have set, down you go. And you must not blame the state board men if they are conscientiously trying to do their duty.

The unfortunate thing for all concerned is that the most honest state board cannot always sift out the weak men and pass the good ones after a two weeks' test of, say, one hundred candidates. It simply cannot be done. The college professors are studying these same men carefully for months—practically for three years—and even then are often at their wits' end to know what should be done with them. But after all the students have it completely in their power to solve this entire question. The way to do it is as the majority do—prepare themselves so well that there is never any doubt either with the college professors or the state boards. It would appear on the face of it that the ones most interested are the students, and yet it is astonishing how some students will persist in neglecting their opportunities and leave the professors and state examiners in a perpetual dilemma as to what shall be done with them. Of course there are some who are the victims of circumstances, as there are in every walk of life, but there are far too many whose only cause of failure is their own indifference and neglect.

With a boy who is conscientious and who has applied himself the greatest handicap in an examination is nervousness. I wish I could impress on students the fact that neither college examiners nor state examiners are their natural enemies. Even though a state board examiner does not know you personally he would nine times out of ten rather see you pass than fail. When he assigns you to a difficult operation he may do it to test your mettle, but in his heart he hopes you will succeed in performing it and if you approach your work with this feeling in your mind you will surely do better than if your knees are knocking together so that you are disturbing the community. I have known personally very many state board men, and I never knew one yet who was so low down mean that he enjoyed the process of plucking an honest boy, and if I ever heard authentically of such a fellow I would willingly travel half way across the continent to labor with the Governor to have him removed.

The day of your graduation is naturally a very eventful one for you, and the acquisition of that diploma seems to you the *ne plus ultra* of all that is worth living for. I am not inclined to minimize the greatness of your present achievement, nor throw a shadow over the prospect which you and your friends are enjoying. Bless your heart, I am almost as happy over it as you are, and no one among all your friends—not even that dear and ever loving mother of yours who sits beaming in the audience when her boy's name is called to receive the degree, not even that little sweetheart who sends you the blushing bunch of flowers tied with pink ribbon and a card on it, "Polly to Jim"—not any of these can enter more fully than I into the possibilities of what the future holds for you as the result of obtaining that diploma. The whole world, at least that part of it represented by the dental profession, is at your feet, and the only limit to your future achievement is that contained within your own individuality. And yet, as I have already intimated, that diploma means absolutely nothing unless you employ the knowledge by which it was obtained to the furtherance of worthy objects and the alleviation of human suffering. In fact, unless you make it a medium of doing good and being kind you have failed just at the point where you might most reasonably have been expected to succeed.

I never see a class of young men graduate that I am not forced into reflection and conjecture as to what will be the ultimate career of each. I have worked with young men so much and studied them so long that it would seem as if I might be able to predict with some degree of accuracy what the future of a given young man would be, but I must hang my head and confess my utter inability to do so. I have doped the matter from every conceivable angle of the game and I have missed the mark nearly as often as I have hit it. Once in a while I make a bull's-eye, but not often enough to become puffed up over it, and so many times I do not come within shouting distance of it. So I do not predict any more. I merely say that some certain things are essential for success in dental practice and for success in life, and if you can bear with me for one more letter I will try to tell you some of the things I think a young practitioner must do in order to attain a fair measure of success. I am glad to be able now to sign myself,

Yours fraternally,
The Preceptor.
C. N. J.

BOOK REVIEWS.

A Manual on Dental Metallurgy. By Ernest A. Smith, Associate of the Royal School of Mines, London; Member of the Institute of Mining and Metallurgy, the Institute of Metals, and of the Society of Chemical Industry, etc. Third Edition. 304 pages. Price $2.60 net. Published by J. & A. Churchill, London, England, 1910.

The function of this book as stated by the author is primarily to prepare dental students for their examinations. In fact, in this edition a list of the questions set by the Royal College of Surgeons of England for the examination in dental metallurgy during the years 1900 to 1909 has been given. But we would advise the student who buys this useful little book not to discard it on graduation. Many very excellent ideas will be found between its covers of practical utility to the general practitioner, and in any calling where metals are so extensively used as in dentistry there should be a constant review of the subject. In one particular there seems to be a diversity of opinion among various authors. This relates to the specific gravity of pure gold, which in the present volume is given as follows: In the cast state 19.3, which may be increased by hammering to over 19.48. This question of the relative specific gravity of cast and malleted fillings is just now receiving some attention from the profession, but as yet no very extensive experiments along this line have been published. It is a field for much interesting scientific experimentation and we trust that some one will work out the problem.

CORRESPONDENCE.

War Department, Office of the Surgeon General,
Washington, April 10, 1911.

Dr. C. N. Johnson,
Editor The Dental Review, Chicago, Ill.

Sir:—For the general information of the dental profession and those young gentlemen who have been deterred from seeking service in the United States army, Dental Corps, by reason of what has been in many respects an undesirable status, I have the honor to state that on March 3d, a measure entitled "A Bill to improve the status and efficiency of the dental surgeons in the United States Army," was passed by the Congress and approved by the President of the United States. (H. R. 23097, incorporated in H. R. 31327 with slight changes.)

It has long been recognized by the Surgeon General of the Army and the War Department, that the Dental Corps is a valuable addition to the Medical Department of the Army, and that the status of the Dental Surgeons as authorized by the provisions of the previous law were inadequate and insufficient to properly reward them for their service or to further tempt young practitioners of the highest professional ability to enter the service.

The passage of the measure referred to has greatly improved the status, pay and allowance of the corps and should make the service desirable and attractive to such young and unmarried dental practitioners, who think they would enjoy a military life.

Section 2 of the bill provides "That all original appointments —(those made since the above date)—to the Dental Corps shall be *acting dental surgeons*, who shall have the same official status, pay and allowances as the contract dental surgeons now authorized by law."

Section 3 of the measure provides that "Acting dental surgeons who have served three years in a manner satisfactory to the Secretary of War, shall be eligible for appointments as *dental surgeons*, and after passing in a satisfactory manner an examination, which may be prescribed by the Secretary of War, may be commissioned with the rank of first lieutenant in the Dental Corps, to fill the vacancies existing therein."

Section 4 provides further, "That the pay and allowances of dental surgeons shall be those of first lieutenants, including the right to retirement on account of age or disability, as in the case of other officers; *provided,* that the time served as dental surgeons, as acting dental surgeons, or contract dental surgeons, shall be reckoned in computing the increased service pay of such as are commissioned under this act." This clause provides for advancement or promotion, practically, of one grade, with commissioned rank in the regular service of first lieutenant, with an increase of pay from ($1,800) one thousand eight hundred dollars to ($2,000) two thousand dollars per year. Quarters when available, or in lieu thereof when no quarters are furnished, commutation at the rate of ($36.00) thirty-six dollars per month. Longevity pay—which is a ten per cent increase on regular pay every five years, for twenty years. Foreign service pay—which is ten per cent increase on full pay for services in the Philippines or Alaska—and retirement on three-fourths pay for age or disability contracted in the service and in line of duty.

Section 5 provides "That the appointees as *acting dental surgeons* must be citizens of the United States, between twenty-one and twenty-seven years of age, graduates of standard dental colleges, of good moral character and good professional education, and they shall be required to pass the usual physical examination required for appointment in the Medical Corps, and a professional examination which shall include tests of skill in practical dentistry and of proficiency in the usual subjects of a standard dental college course."

Examinations are now being conducted with the view of filling the corps to its maximum strength. Dentists, therefore, desiring to take the examinations should make application at once to the Adjutant General, U. S. Army, War Department, Washington, D. C., when a blank application sheet will be forwarded to them to be executed and returned.

The character of the physical examination is the same as that required for surgeons entering the Medical Corps.

The professional examination comprehends all subjects taught in standard dental colleges in both theory and practice, and are made as thorough as is fair to the applicant and consistent with the best interests of the service.

The Army Dental Surgeon, if he is to fill his position with credit to himself and his profession, and with proper efficiency to the service, must be well educated, above the ordinary in technical ability, and well qualified in all departments of dentistry. The need of these requirements will be more readily appreciated when the statement is made that the dental surgeons of the army are very rarely associated at a post with a member of their profession. Consequently they are thrown entirely upon their own professional resources and must exercise their own judgment in the treatment of their more difficult and serious cases, as consultations are practically out of the question.

Furthermore, the surgeon of the post frequently refers cases, involving diseases of the mouth and jaws with which he is more or less unfamiliar, to the dental surgeon, and expects to find, as he has a right to, that the dental surgeon is not only capable of rendering a correct diagnosis, but competent to take charge of the case if required to do so; as in the treatment of fractures of the jaws, deep seated abscesses of the jaws associated with impacted teeth, facial neuralgia, empyemia of the maxillary sinus, etc., etc.

The deans of the dental colleges and the profession generally can greatly assist the department in building up and improving the efficiency of the Dental Corps, by advising and recommending young practitioners of the best attainments to apply for these positions.

The position of a dental surgeon in the United States Army is an honorable one, and should prove attractive to young men, as the pay and allowances now offered are good, and in the unfortunate event of broken health incident to the service or upon reaching the age limit of sixty-four years, he retires from the service, with three-fourths pay, which after twenty years or more of service would give him a yearly income of ($2,160) two thousand one hundred and sixty dollars.

Very respectfully,
Geo. H. Corney,
Surgeon General, U, S. Army.

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.]

An Aid in Cleaning Teeth:—Mix a small quantity of Glyco-Thymoline with the pumice, and thus a most pleasing taste will be imparted, as well as the beneficial effects of the Glyco-Thymoline upon the tissue.—*L. Bernard Collier, D. D. S., Seattle.*

Essence of Wintergreen:—In the glass in my water warmer in which I keep my water syringe, I add a few drops of essence of wintergreen. It gives a pleasant flavor and odor and does not stain the glass.—*A. F. Kenney, D. D. S., Chicago.*

To Remove Rubber from Files:—When files are clogged with vulcanite place them in a solution of one part saltpetre, three parts sulphuric acid, one part water, brush with stiff brush, adding sufficient soap to clean them. This process will also sharpen the file.—*J. H. Pearce, D. D. S., Peoria.*

Care of Wax Model:—In casting gold inlays it is highly important that the wax model be perfectly clean. Particles of amalgam from an old filling, gutta-percha, or even a little blood may completely ruin an inlay. To avoid this, rinse the cavity thoroughly before the impression is taken, then rinse the model with a syringe after it is mounted on the sprue.—*O. DeForest Davis, D. D. S., Minneapolis.*

Preparation of Roots for Crowns:—In preparing roots to receive crowns where, because of extensive decay or for other reasons, it is necessary to grind the teeth off under the gum, in fitting the abutments a few drops of the adrenalin and cocaine combination injected into the gums around the teeth will greatly facilitate the work. It not only makes the operation painless, but prevents hemorrhage, which would otherwise interfere with the work.—*J. A. Heidbrink, D. D. S., Minneapolis.*

Thumb Broaches to Order:—Take ordinary barbed broaches of different sizes, cut off the shanks at different lengths, mount on the ends of them little buttons of shellac crystals. With these broaches it is possible to reach any canal in any tooth in the head, as well as having the advantage of the delicate feeling in the ends of the fingers, which is not possible with a broach holder. In this way one can easily tell when the end of the canal is reached or some obstruction encountered, and is not apt to drill through the side of the canal.—*A. H. Russell, D. D. S., Minneapolis.*

A Combination Acolite and Logan Crown:—Grind the Logan crown so that the neck is in contact with the root labially, and a space left lingually. Place some inlay wax round the post and force to place. Remove and trim away the excess wax. Replace, chill, remove, invest and cast in Acolite. This crown will now have perfect adaptation to the root.

There is an advantage of Acolite over gold, in this method, namely, from the fact that there is not the slightest danger of checking the porcelain, and there is sufficient strength to insure stability.—*A. Dangar Burne, D. D. S., Sydney, Australia.*

The Strong Arm:—Those of you who extract find it necessary sometimes to remove a tooth, or rather what remains of it, which necessitates great traction, and you find your hand shifting on the forcep handle, so that you are compelled to take a new and better grip.

Just keep a little box of powdered rosin back in the laboratory, and before beginning the above mentioned operation dust the rosin over the palm of the hand. Two individuals will be pleased—yourself and the patient.—*C. E. Allen, D. D. S., Chicago.*

Investing Wax Inlay:—Take a plaster spatula and with a coarse stone on the lathe or a file cut deep rounded serrations like the teeth of a saw in one side of the handle. Sift the investment into the water until it is taken up, but do not stir. Paint the model as usual and after the ring is in place fill with investment, working it around model by an up and down motion of spatula blade. Now grasp the ring with its crucible former in one hand between thumb and fingers, and with the other draw the serrated side of the spatula handle back and forth across the lower edge of the crucible former. The vibrations thus produced will "settle" the investment material around the wax, so that it is perfectly adapted and well packed. When the inlay is cast it is as clean cut as a hound's tooth.—*A. G. Loomis, Chicago.*

"Three Point Contact":—We hear much said about the "Three Point Contact, the movement of the condyle, etc." Now, while all this is scientifically and theoretically correct, it is practically of little account. There is very little grinding done with artificial teeth. The movement of the jaws is simply vertical and not horizontal. Take the case of a full upper denture, with most of the lower teeth in place. There is often great irregularity in the grinding surfaces. The posterior teeth are often lower than the anterior. Then, sometimes, the most of the upper teeth are in place but very irregular. A lower denture properly articulated in the effort to grind (the patient) would be up against it and the set would move about unless there was a good ridge. Three-fourths of the cases coming into my hands of late years, far more so, for unknown reasons, than in former days, are flat, narrow, ridgeless jaws, and oftentimes covered with a flexible membrane. The effort to give a horizontal movement will move the plate unless the surfaces of the teeth are absolutely flat. In any case, in artificial teeth, it is not well to leave much of a cusp. This is especially true in the case of old people, whose lower jaws have had no resting place for many years, swinging around in a circle. There are many things in dental practice, theoretically true, but impractical in use.—*L. P. Haskell, D. D. S., Chicago.*

MEMORANDA.

COLORADO DENTAL SOCIETY.

This society will meet at Boulder on June 29, 30 and July 1, 1911. Chas. A. Monroe, Secretary.

NEBRASKA STATE DENTAL SOCIETY.

The thirty-fifth annual meeting will be held in Lincoln May 16, 17, 18, 1911. J. H. Wallace, Secretary.

CALIFORNIA STATE DENTAL ASSOCIATION.

The thirty-eighth annual meeting of the California State Dental Association will be held in San Francisco June 14, 15, 16, 17, 1911, at the Palace

Hotel. An invitation is extended to all our friends to meet with us. C. E. Post, Secretary, 126 Stockton St., S. F.

AMERICAN DENTAL SOCIETY OF EUROPE.

The American Dental Society of Europe will hold its next annual meeting in Dresden, Germany, July 28, 29 and 31. A most cordial invitation is extended to members of the profession to be present. T. G. Patterson, Hon. Secretary, 2 Quai des Eaux-Vives, Geneva, Switzerland.

IOWA STATE BOARD OF DENTAL EXAMINERS.

The Iowa State Board of Dental Examiners will hold a meeting for the examination of candidates for license to practice dentistry in Iowa, beginning at 9 a. m., June 5, 1911, at Iowa City. For blanks and other information write Dr. J. A. West, Secretary, 417 Utica Bldg., Des Moines, Iowa.

ARKANSAS STATE BOARD OF DENTAL EXAMINERS.

Next meeting of the State Board of Dental Examiners will be held June 5 and 6, 1911, Pine Bluff, Ark. All applicants are required to pass a theoretical examination, fee $15.00. Examination covers all branches taught in dental schools. No temporary license issued. No interchange with any state. A. T. McMillin, Secretary-Treasurer, Little Rock, Ark.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the state of Illinois will be held at the Chicago College of Dental Surgery, corner Harrison and Wood streets, Chicago, beginning Monday, June 5, 1911, at 9 a. m. "The following preliminary qualifications shall be required of candidates to entitle them to examination by this board for a license to practice dentistry in the state of Illinois: Graduates of a reputable dental or medical school or college, or dental department of a reputable university, who enter the school or college as freshmen on or after the school year, 1906-7, must have a minimum preliminary education of not less than graduation from an accredited high school or a certificate from the State Superintendent of Public Instruction, equivalent officer or deputy, acting within his proper or legal purisdiction, showing that the applicant had an education equal to that obtained in an accredited high school; which certificate shall be accepted in lieu of a high school diploma." Candidates will be furnished with proper blanks and such other information as is necessary, on application to the secretary. All applications must be filed with the secretary five (5) days prior to date of examination. The examination fee is twenty dollars ($20) with an additional fee of five dollars ($5) for a license. Address all communications to

T. A. Broadbent, Secretary, 705 Venetian Bldg.

ALUMNI MEETING.

The Alumni Association of the School of Dentistry of the University of Pittsburgh will hold its annual meeting Friday, June 9th, 1911. Dr. Arthur D. Black, of Chicago, will be present and a large number of interesting clinics will be given. F. C. Friesell, Secretary, 6120 Center avenue, Pittsburgh, Pa.

MISSOURI BOARD OF DENTAL EXAMINERS.

A meeting of the Missouri Board of Dental Examiners, for the examination of applicants, will be held in Jefferson City, Mo., June 5th, 6th and 7th,

1911. All applications, together with the fee of $10, must be filed with the secretary on or before June 1st. Address George E. Haigh, Secretary, Jefferson City, Mo.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Michigan State Board of Dental Examiners will be held at the dental college building at Ann Arbor during the whole of the week of June 19, beginning on Monday at 8 a. m. All applications and fees should be in the hands of the secretary at least ten days before that date. For full information address A. W. Haidle, Secretary, Negaunee, Mich.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Indiana State Board of Dental Examiners will be held in the state house at Indianapolis, beginning at 9 o'clock Monday, June 12, 1911. All applicants for examination and registration in this state will be examined at this meeting. There will be no other meeting until January, 1912. No temporary permits are issued by this board. For further information inquire of the secretary, F R. Henshaw, 508 Pythian Building, Indianapolis.

OHIO STATE DENTAL BOARD.

The regular spring meeting of the Ohio State Dental Board will be held in Columbus, on June 20-23, inclusive. Persons desiring to secure licenses, should address the secretary for an application. Applications must be returned to the secretary, with the fee of twenty-five ($25.00) dollars, not later than June 10, 1911. For further information address the secretary, L. L. Yonker, Bowling Green, Ohio.

INDIANA STATE DENTAL ASSOCIATION.

The program for the fifty-third annual meeting of the Indiana State Dental Association, which meets May 16-18, is completed and Dr. Kennedy, chairman of the Executive Committee, says, "This meeting will be the brightest and snappiest ever held in the history of the association." Dr. F. M. Bozer, Supervisor of Clinics, has arranged for a fine clinic. Many prominent men from Iowa, Illinois, Kentucky and Ohio will be on the program and give clinics. We will have an increased number of exhibits, as more space has already been sold than ever before. The meeting last year was good. This one will be better. Otto U. King, Secretary, Huntington, Ind.

RECENT PATENTS OF INTEREST TO DENTISTS.

968350. Blowpipe and operating the same, Robert C. Harrison, Lockport, N. Y.

968055. Dental articulator, Mentor Howard, Corvallis, Ore.

969050. Artificial tooth, John E. Evans, Lima, Ohio.

969055. Foot-controller for electric motors, John F. Hammond, Prince Bay, N. Y.

968799. Sprue, Cornelius J. Prowse, Cambridge, Mass.

969251. Head rest, Jacob Denzer, Stransburg, Ohio.

969263. Dental flask, David Folb, New York, N. Y.

969639. Tooth brush, Leopold Langh, Vienna, Austria-Hungary.

969487. Blowpipe, Russell W. Magna, Holyoke, Mass., and L. G. Carpenter, Philadelphia, Pa.

969682. Dentist's implement, Horace M. Yorke, Freeport, Maine.

970224. Tooth powder distributor, Hermann Hoelzer, Osterholz-Scharmbeck, near Bremen, Germany.

969986. Apparatus for making backing for artificial teeth, Farris S. Sawaya, Baltimore, Md.

969922. Dental appliance, Wm. D. Tracy, New York, N. Y.

970148. Cuspidor, Henry E. Weber, Canton, Ohio.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

NATIONAL DENTAL ASSOCIATION.

The fifteenth annual session will be held in Cleveland, Ohio, July 25 to 28, 1911. A City Beautiful—Wide streets, Superior avenue, 132 ft., Euclid avenue, 99 feet, delightful parks, 1,700 acres, extensive boulevards, over twenty miles of lake front. It is indeed the "Forest City," the heart of the Connecticut "western reserve," the home of 3-cent street car fare, "Golden Rule" policy, municipal farm colony (2,000 acres) and civic center group plan. Population—Sixth American city, metropolis of Ohio, 600,000 people, twenty-seven nationalities. Climate—Owing to its favorable location on the south shore of Lake Erie, it has a delightful summer climate, 2 to 8 degrees lower than the other northern cities—average summer temperature 66 degrees. Water—Inexhaustible and of the purest. It is taken from five miles out in Lake Erie, through a great tunnel. Business—A world-market and workshop. The greatest iron ore market in the world; approximately 4,000 shops in which 125,000 different articles are made. Cleveland outranks all other American cities in the production of steel ships, heavy machinery, wire and wire nails, bolts and nuts, vapor stoves, electric carbons, malleable castings, telescopes, etc. It takes high rank in paints, oils, women's clothing, chewing gum and varied products. Beautiful and safe banking institutions; with less than 1 per cent of the population of the United States it has nearly 4 per cent of the savings deposits. Cleveland is pre-eminently a convention city.

MISSOURI STATE DENTAL ASSOCIATION.

The forty-sixth annual Missouri State Dental meeting, which convenes in Joplin, June 13, 14 and 15, promises to be one of the best ever held by the association. An excellent program is being arranged and the essayists have been chosen with great care, and as they are all men of known ability, you may look for something exceptionally good. There are to be five papers and an extra effort is being put forth to have a larger clinic than ever. The meeting takes place in the High School Building, which is only three blocks from the hotel headquarters, and in the same block with one of the best hotels. The building is well arranged for this convention, having large well lighted rooms and the clinic rooms will have the north light. The building has also a fine auditorium, seating 800 and the acoustics are good. Electric fans are to be installed throughout the building and every convenience provided. Fifteen exhibitors have already reserved space and several more have signified their intention of coming. The local committees are making every preparation for the pleasure and conveniences of the guests. An automobile trip over Jasper County's famous macadamized roads to some of the larger mines, has been promised. Any of the dentists desiring to go and be shown through a modern mining plant, may do so. A trip to Crystal Cave, a wonderful work of nature, 170 feet under ground, has also been arranged and is well worth one's time to see. You cannot afford to miss this meeting, the railroads have made a rate of 2 cents per mile on the certificate plan on roads in the Southwestern Passenger Association and the committee expect to have all points in Missouri included. If you haven't sent in a clinic, do so now and help to make this a banner meeting. Mark the date on your appointment book and do not fail to spend three days in the city that Jack built.

A PERMANENT DEFENSIVE ORGANIZATION IS NECESSARY TO ASCERTAIN AND SAFEGUARD THE COMMON RIGHTS OF THE DENTAL PROFESSION.

The Dental Protective Association was formed and collected funds for the purpose of testing the validity of dental patents, but has recently so changed its by-laws and strayed from its original purpose as to become the ally and collecting agency of a patentee whose test suit against the profession has been prolonged over the last three years; the patentee in the meantime securing two new patents to strengthen the claims of the original. It was the patentee's own choice to apply the rigor of the law rather than an amicable and businesslike proposition to the profession. A defense committee was therefore organized and its work so successfully performed that there is every reason to believe the original Taggart patent will soon be decided in favor of the profession. But Dr. Taggart's attorney has recently announced the probable institution of suits against many dentists under the claims of the new patents whose validity each individual sued would have to bear the expense of testing in the courts unless we create a dependable permanent defensive organization. The object of such organization should be safeguarded by proper limitations on the policy and powers of its managing officers. For instance, there should be no such concentration of authority as Dr. Crouse exercises in the voting of all proxies not otherwise assigned, whereby he was enabled to change the policy and the law of the Dental Protective Association without the knowledge of the membership or an opportunity for their enforcing a protest. Neither should there be such authority to any three men as is granted to the board of directors of the Dental Protective Association whereby the board can change the law and policy of the organization on a week's notice to itself. Neither should any three men have such extraordinary power as was exercised by the board of directors of the Dental Protective Association whereby there was adopted an agreement previously arranged between Dr. Crouse and Dr. Taggart, providing that, "*no member of the Association* is to *defend or join in or contribute to the defense of any suit upon any of said patents while practicing the method under such permission from Dr. Taggart.* By this partnership agreement, the Dental Protective Association acquires 40 per cent and Dr. Taggart 60 per cent of the money collected through this agency. Many consider this alliance more dangerous to the independence and safety of the profession than was the patent situation which threatened to enslave the profession but a few years ago. To say the least, it would be unwise, unsafe, inexcusable and insanely foolish for us to rest in idle indifference while organized effort, backed by capital, seeks to tie the hands of one after another of us until the profession loses its virility, its independence, and its community of interest. We, as a profession, have had the benefit of the course pursued for three years by the defense committe in the Taggart-Boynton suit, and a permanent defensive organization may utilize the information, the experience and the data accumulated and this defense committee, of which Dr. F. M. Finley, of Washington, D. C., is chairman, and its contributing supporters, will be utilized as a nucleus of value in every respect. It seems to us the part of wisdom and sane self-protection to organize and that ordinary prudence demands and the vast interests of the profession require the most prompt canvassing and quick response possible. The undersigned therefore invite every reader of this to join in a thorough canvass of the whole profession and enlist as members of a new permanent organization every one whose personal interest and loyalty to the profession keeps alive his sense of justice and fraternity. In this crisis let not the stigma of injustice or of disloyalty rest upon any member of the profession. M. F. Finley, R. Summa, W. E. Boardman, Wms. Donnally, W. H. Trueman, Wm. Carr, V. E. Turner, R. H. Volland, E. P. Dameron, H. L. Wheeler, F. W. Stiff, E. E. Haverstock, F. A. Roe, F. T. Breene, I. A. Bass, W. G. Crandall, A. J. Cottrell, C. W. Rodgers, C. S. Butler, H. C. Pelton, S. H. Voyles, Geo. H. Wilson, H. L. Roberts. Response should be addressed to Dr. M. F. Finley, 1926 "Eye," St., N. W., Washington, D. C.

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FAILURES.

BY DR. E. K. WEDELSTAEDT, ST. PAUL, MINN.

A short time ago a woman of thirty-five years of age complained to me regarding some annoyance which she had with one of her teeth. She called my attention to an upper right first molar and stated that something was wrong. The disto-occlusal surface of the adjacent second bicuspid contained a beautifully made and finished gold operation, so it was supposed that the mesial surface of the molar was decayed. The teeth were separated and then the cause of her annoyance was quickly seen. Her former dentist had been asked to make the operation on the bicuspid. After adjusting the rubber dam and making an outline of his cavity, he discovered that the mesial surface of the molar was also involved. So a round cavity about 2.5 mm. in diameter, was cut into that surface and it was filled with amalgam. The operation in the disto-occlusal surface of the second bicuspid was then made. Within two years a cavity of decay extended completely around the amalgam filling which had been made in the mesial surface of the molar. There is some comment to make regarding this case; but in making it I shall remember that the men in the dental profession all make mistakes—except some men—"so let him who is without sin cast the first stone." I am not that man.

Now, today let us take the mesial surface of an upper first molar and deal entirely with it. Let us confine the discussion of failures to that particular surface and then let the matter rest. This is said for the reason that there is no subject in dentistry that

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*Read before the Midwinter Clinic of the G. V. Black Club of St. Paul, February, 1911.

is so difficult to write about as the causes which lead to the failure of dental operations. By confining the discussion to one particular surface, something, perhaps, may be learned that would not be learned did a general discussion of failures take place.

The mesial surface of an upper first molar differs from the mesial surface of any of the human teeth. It is almost a flat surface, but it rounds sharply at the lingual and buccal angles. It forms almost a right angle with the occlusal surface. The distal surface of the second bicuspid, which contacts with the mesial surface of the molar, is also very different from any of the distal surfaces of the other bicuspids for its disto-lingual portion slopes away towards the median line. On this account the lingual embrasure, between the molar and bicuspid, is larger than any other embrasure. These facts should not be forgotten; indeed, the conditions named should be studied from mouth to mouth until the facts are indelibly impressed. On account of what has just been said regarding the approach of these two teeth to each other, the area of liability to decay necessarily must be different from that existing on the mesial and distal surfaces of other teeth. This is very true. If you will take a number of extracted upper first molars and examine their mesial surfaces, it will be a very easy matter for you to observe how small a territory is involved in the area of liability. The tooth itself must be studied to obtain that apprehension of the subject that naturally leads to the full comprehension of it, which is so necessary for every man to have who desires to practice his calling with some degree of intellectuality. And permit me to say, if there is not some intelligence introduced in the making of our operations, they might better not be made, so far as this relates to having that success which every man wishes whose faculties are being developed as they should.

Immediately following this lecture a number of illustrations will be used which will explain more fully what is meant by the area of liability to decay, so far as it relates to the mesial surface of the upper first molars.

In the case spoken of in the first part of this lecture, it was stated that a cavity of decay extended completely around the amalgam filling. Now, the man who made this operation has been doing similar things for the past forty years, and until he finishes his dental practice he will continue following just such plans in his operative procedure. Can you tell me why he follows such a course?

A selective and guiding intelligence does not seem to be his. With the development of a man's faculties surely it would seem that, with the evidence which we have before us each day, there would be a very different conception from that which is so often displayed. We should certainly know and control conditions instead of allowing conditions to control us. Every time we see such a failure as the one mentioned, we at once know that the conditions controlled the man and not the man the conditions. Such a condition of affairs is not to the liking of any intelligent man, for it tends to bring chagrin and mortification to him, and there are few men who care for such things.

The end, aim or object in making dental operations is this: We make dental operations for a specific purpose, to prolong the usefulness of the human teeth for the greatest length of time possible. If you accept this view of things then every failure that comes to us should be studied and the cause which led up to and was instrumental in bringing it about, should be sought until found. When found, provision should at once be made for the doing away with the special condition which brought about that failure. Where such a course is started and continued, it does not take so very long for a man to begin having much more satisfaction from his daily operations than he formerly had. It will not do for us to continue to live with the past and believe that frail or soft teeth, or teeth of medium quality are to be blamed for our lack of progress. Such a theory may have been all very well when we had only the moss covered theories to deal with which a few men continue to hold up to us as "the things," for they were good enough once and still are good enough. This was all very well at one time, but since that time we have advanced as a profession, not in one fell swoop, but gradually, slowly, step by step, and that advance continues day by day. Surely we are looked to as men of intelligence, therefore let us make our operations as such men and not make them as though we were a machine which makes all things alike.

Many of the operations which are made in the mesial surface of upper first molars fail. Indeed, it may be stated as a fact, which is based on a study of failures that has been carried on for years, that about all fillings made in the middle or occlusal third of the mesial surface of such teeth sooner or later fail, provided the second bicuspid is in position. Such an operation should not be made under the circumstances just spoken of. Or, if the cavity margins are extended to just reach the occlusal surface, very little or no advantage is gained because of the inability of properly preparing the cavity so as to remove the decay; because of the inconvenience of placing the filling material; because there is usually only enamel between the filling material per se, and the occlusal surface; because with the conditions just mentioned, fracture is not only invited but usually takes place, and because none of us, with any knowledge of failures, would desire such an operation made for himself; therefore, we are all in duty bound not to make them for others.

Most assuredly, if the patient were a child, or a sickly person, or for any other cause, it was necessary to make a temporary operation, why, then, such reasoning does not hold good. But in the case under consideration we are dealing with a patient full thirty-five years of age, where every condition was in the operator's favor for making a permanent operation. Nor will it do to merely cut through the enamel and anchor the filling in grooves or undercuts, for such operations sooner or later fail. (We should not forget that grooves and undercuts merely tend to weaken the walls of the cavity and they do not add any stability to the filling.) The filling should be anchored on a flat seat, which is cut in the occlusal surface; the seating of the filling should be on a broad, flat gingival wall. Such an operation made with gold foil or amalgam, if properly made, should remain in situ; if the lingual and buccal margins of the cavity, are extended into immune territories, I see no reason why it should not stay forever. Indeed, I have seen such operations that were made forty years ago, and today they are doing good service and look just as well as though they had been made but yesterday. There is not a man in this room who is not able to make operations where similar results will follow, provided that he wishes to do so. What one man can do, another may do, if he will but try and keep on trying. If a man is unwilling to advance, if he cannot transform his thinking as science and investigation have made things more exact, the dental profession is hardly the place for such a person.

It will not do to leave an overhanging mass of filling material along the gingival margin, because such a condition invites failure; it will not do to leave a wide open V-shaped space with the contact at the gingival margin, for this not only invites failure but the loss of the teeth as well. It will not do to have a large surface contact, for this invites failure. It will not do to leave a condition of faulty environment, for this always invites failure. It will not do to operate on abnormal conditions, and when the operation is completed still have in situ, a condition of abnormality, for this also invites failure. (Whether this abnormality consists of the leaving of a mass of soft decalcified dentin in the cavity, or else making operations without properly extending the cavity margins, is all one. Both the conditions named, and many others, are abnormal conditions which are unnecessary for us to overlook or to create.) At the present time altogether too many men are creating conditions which are inviting disease instead of creating conditions where it would be impossible for disease to obtain a foothold. It is just as easy to create the latter condition as the former. More could be said about this, but what's the use? The making of such operations, as was made for this patient, shows a lamentable lack of familiarity with the conditions with which the man was dealing. This in all charity is sufficient to say.

For upwards of twenty years attention has ever and again been called to some of the principal causes for the failure of just such operations as those which we are considering in this lecture. Today not more than one per cent of the men in our profession is following the teachings to which attention was called so long ago. Is it in your power to tell me what the reason is for this apathy? Are the dentists to blame, or does the trouble lie with our patients? Where is the trouble, and what is it? Surely our ultra intelligent surgeons do not, year after year, follow a course that brings about failure. No man, be he surgeon or dentist, can afford to follow such a course.

Very recently a number of lives have been lost, owing to accidents happening to our flying machines while they were being used. Among those who were killed was Archy Hoxsey. Immediately after his accidental death a man asked an aviator, "What causes all these accidents to your machines?" The man asked, looked at his questioner and very slowly said, "If we but knew, there would be no more accidents." Now, gentlemen, we know many causes for the failure of dental operations and there are a few of us who feel that some of these causes should disappear and thus become a thing of the past. Not only do we feel that way about the doing away of some things, but we feel that never in the history of the world was there such great need for the introduction of a greater degree of moral obligation than there is right now. This does not only apply to the men in the dental profession, but it applies to those in every calling and in every walk of life. At the present time this one thing is more greatly needed than everything else. Let me have the illustrations and then perhaps we may obtain a much better hold on this subject.

RECREATION.*

BY F. S. ROBINSON, CHIPPEWA FALLS, WIS.

In treating this subject I realize that it covers a very extensive field and I can only touch on parts of it. The work of the dentist cannot help but be monotonous and few kinds of work are performed under conditions of strain both nervous and physical as are his.

Working several hours each day, week after week, month after month, year after year, unless proper recreation is taken, in a very few years the mental and physical tone is so lowered that the dentist is unable to properly do his work or enjoy the amusements and pleasures which he should.

When the time comes to the dentist, as it has probably many times to each of you, when he thinks dentistry, eats dentistry, dreams dentistry, and hates the tooth in all its forms, he needs a strong recreative purgative to rid his system of some of the rotten dentistry, for that is the kind you will find him full of at such times and make room for some of God's sunshine and human feeling.

It is an undisputed fact that our mental and physical condition greatly influences our ability to work. We find we are able to work better and faster at some times than at others. It is also a fact that our mental condition influences our physical.

Therefore, recreation for the dentist means something which is pleasurable in nature, will divert the mind, exercise the muscles and which will bring true rest, both mental and physical.

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*Read before the G. V. Black Dental Club of St. Paul (Inc.), Feb. 16th, 1911.

Some men have the happy faculty of leaving with little effort the cares of the office safely locked therein when they lock the office door, but most of us are not so fortunate. To him the choice of recreation is easy.

The average dentist, however, requires some form of recreation sufficiently strenuous not to allow his thoughts to return to his professional cares and that will give his muscles sufficient exercise to keep them up to normal tone. Without these elements the recreation will fail to recreate.

There is a great difference between exercise and recreation, and a great many people do not properly differentiate between them.

A small boy can get as much exercise from a bucksaw and cordwood as from a game of baseball, but the former certainly is not recreation for him.

A friend, a young man, though not of our profession, had stayed at his work too long and had a physical breakdown. In trying to recuperate he had adopted walking, one of the best exercises to build up, but it failed.

I have passed him as he was walking on the street with his thoughts far from his body and still on his troubles.

An opportunity came to suggest to him to take up a line of nature study which would take him off the sidewalks and into the fields and woods and require that his mind and faculties of observation be kept on the alert with an object in view. He acted on the suggestion and under the new conditions found true recreation and improved rapidly. Exercise with dumbbells or Indian clubs may be practiced in one's room, but they usually fail to produce good results, while the same exercises gone through in a class to the accompaniment of music may prove excellent recreation.

Rest is a word which is too often confused with idleness. Idleness as we usually interpret the term is physical inactivity. I presume there is such a thing as mental idleness, but I cannot conceive such a condition in a normal man during his waking hours. Physical inactivity in itself does not usually bring rest, because it may allow the mind to do over again the work of the day or cross the bridges of the morrow before coming to them.

On the other hand, recreation may occur during physical inactivity where the mind is diverted as in conversation, reading, or in listening to music or a play.

Now, just a word in regard to reading as a recreation. Although our work is not, strictly speaking, such as to require continuous mental effort, it is performed under constant nervous strain which exhausts the nerve vitality far more than the former. Therefore after a hard day's work our choice of reading material for recreation should be something light and interesting which will divert our minds without requiring any particular mental effort to follow the thoughts of the writer.

Studying, on the other hand, should be done when our mental vitality is at its highest mark to give the best results. All these things go to show that the mental element is the one which should be given first place in the choice of recreation.

As our temperaments, tastes and environments differ, the choice of recreation must comply with the individual. Personal equation is a prominent factor. What would be recreation for you might be work for me.

At first trial one may fail to choose a form of recreation adapted to his needs and may have to try several before one suitable is found. Recreation should be diversified; like tonics one form of recreation may prove satisfactory for a time and then fail to perform its mission when a change is demanded. It is said variety is the spice of life and it certainly is true as regards recreation.

Forms of recreation in which the element of competitive strife enter are usually good, as they act as mental stimulants. In some cases of nervous troubles, however, they are contra-indicated and a mental sedative needed.

A hobby is a good thing when not ridden too hard. In talking of recreation with a man who employs a great many men he said: "When I find one of my men with a hobby, I know that man will not break down in the busy season, and he will do more work than the average man, too."

For us out of door recreation is to be preferred, but in this climate it is hard to get interested in out of door sports in winter. Coasting, skating, snow shoeing and skiing are all excellent sports nevertheless.

Most men inherit from their ancestors a considerable portion of the purely animal tastes and enjoy the sports of the chase, the rod and the gun. I presume the followers of the rod and gun out-number all others during the game season. As I am one of the number I can heartily endorse them. At home I am credited with being a disciple of Isaac Walton; I must say, however, that while fishing the lakes and streams I have never found time for that profound contemplation of philosophical, social and scientific problems which he advocates. But after many years' experience I can vouch for the truth of the following stanza from a fishing song:

"Fishing, fishing is one of the gentlest arts,
Whether you fish for fishes or whether you fish for hearts.
Fishing, fishing is not in the hands of fate,
But all your success, you will find more or less depends on the kind of bait."

Annual, semi-annual and quarterly periods of recreation are of great value, but it is the daily and weekly periods which are really the more beneficial. The former is a good deal like eating enough at one meal to last one a month.

Most of us seem to find it difficult to find the time to devote to recreation and so do not devote sufficient time to it. I have been, and am yet to a certain extent, guilty of that mistake. The way to do is to keep in such condition that you can perform as much work in a few hours as you could do in a longer time without recreation.

I want to put in a strong plea for a weekly half-holiday. A few years ago the dentists in our little city agreed to take a half-holiday on Saturday afternoons during the summer months. The results surprised me, and I think the other dentists as well. I found I could do as much work in five and one-half days as I had done in six days before and do it easier. It was but a short time before our patients became informed of our new office hours, and we were rarely asked to work on Saturday afternoon. This custom we have followed each summer since, and you would find it hard to convince any of us that it is necessary to work Saturday afternoons. You will find that your example will be followed by other lines of business. In our city during June, July and August the law, dental, and all offices where stenographers are employed observe the Saturday half holiday. Most of the factories and wholesale houses also observe it and the dry goods houses observe Wednesday afternoon.

In the large cities this problem has been worked out and the custom pretty generally established, but I know I am speaking to a good many men from our smaller cities, and if you have not established this custom I urge you strongly to give it a trial.

Certain forms of recreation, like morphine, exert a peculiar influence on the morals of those who indulge in them—of which I might mention fishing, hunting and automobiling. Men whose reputation for veracity was never questioned, while under its influence have been known to give utterance to statements which to express it mildly should be taken with a little salt, about a pound to the sentence is the right proportion. Fortunately the condition is only temporary.

There is one other form of recreation which has come to the front the past few years which I wish to mention—automobiling. The auto with all its faults and shortcomings has been one of the greatest factors in securing recreation to an immense number of people. It takes them out in the pure air to many places where they could not go in the limited time allowed them for recreation, and you may be assured that if they have troubles they will not be dental.

In this essay I hope I have not violated an axiom which Gov. Hock of Kansas brings out in one of his anecdotes. Being shown through an automobile factory the guide was explaining the various parts of the wheel to him, and remarked: "You know the longer the spoke the bigger the tire."

WANTED—MEN WITH VISION.*

BY DR. T. F. COOKE, BURLINGTON, IOWA.

A certain man of my acquaintance who is going up and down the land speaking to large audiences of men, makes use in one of his addresses of these lines:

"Give me men to match my mountains,
Men to match my inland plains;
Men with empires in their purpose;
Men with eras in their brains.

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*Read before the G. V. Black Club, of St. Paul, February, 1911.

Give me men to match my prairies;
Men to match my inland seas;
Men whose thoughts shall have a pathway
Up to ampler destinies."

And as I wondered what message I could bring to the men gathered in this meeting that would be worth while, it seemed to me there would be nothing at least of more vital importance than that I should, if possible, in the few minutes that are mine, say something that would lift your thought to the great possibilities that are ours in just being *men,* who belong to the best era that the world has ever seen and to the best profession with one possible exception, that is striving for the amelioration of the world's suffering. That, in short, we might see visions and dream dreams. Ah! but you say we do not want visionaries and dreamers in our ranks; we want the hard-headed man of affairs who can convert gray matter into bank notes and the convolutions of whose brain are fashioned into dollar signs. We want men in dentistry whose thoughts run along lines continually of cavity preparation, and who think in terms of gold inlays, fillings, and prophylaxis. And I grant you that these are necessary things and ought to have a large place in our thinking, but I do not grant you that these alone are necessary nor that their presence precludes the possibility of dreams and visions.

Before there was an electric telegraph for the transmission of transcontinental messages at so much a word, there was a dreamer who had a vision in his mind's eye, that somehow that thing might be possible, and when Samuel F. B. Morse flashed his first message across that wire from Washington to Baltimore, "What hath God wrought," he was but paying tribute to that power within him which made it possible for him to dream dreams that would come true.

Before there was an Emancipation Proclamation, striking the shackles from the feet of four million slaves, there was a dreamer of dreams who had a conviction that the system of human slavery was mightily wrong and who when he signed his name to that document was but seeing the fulfillment of that vision that he had years before while in a southern slave market, when he said: "If I ever get a chance to hit that thing, I'll hit it hard." And so I might go on and on and call to your mind proof after proof from history, profane and sacred, that the men who have really done things in the world are the men who saw visions and dreamed dreams.

The same vital principle holds true in dentistry. Before the rubber dam, Barnum was. Before the use of cohesive gold and the hand mallet, Atkinson was. Before the worked-out germ theory of decay, Miller was. Before extension for prevention and a thousand other things that we cannot get along without today, the product of his mighty brain and the fulfillment of his dreams, G. V. Black was. And if I might be permitted to paraphrase, What shall I say more? For time would fail me to tell of Harris, and Webb, and Allport, and Flagg, and Horace Wells, and Johnathan Taft, and many others, both dead and living, who through faith in the ultimate outcome of their chosen profession, suffered poverty and ridicule and contumely for their visions and dreams that we, their children, might have a better heritage. Verily, they builded better than they knew. And shall we, then, surrounded by so great a company of witnesses, and with so great a heritage, not pursue our avocation with all the persistency and devotion to high ideals and better service that characterized them?

We are come upon an age that is better than any that has gone before. Our opportunities as compared with theirs are well nigh limitless. This is an age when men do not think in terms of the ox cart and the stage coach, but of the automobile and the aeroplane. It is a fast age. I heard the other day of a man in one of our large cities who started to cross a busy thoroughfare; suddenly he saw a trolley car just before him. He heard the honk honk of an automobile to his right and the chug chug of a motorcycle to his left; looking up he saw an airship about to alight. As a possible means of escape he dropped through a man-hole in the street just in time to be run over by a subway train.

We frequently hear it said that this is an age of commercialism; that men are grasping for the almighty dollar with greater avidity than ever before. Perhaps there is some truth in this; I do not know; I never lived in any other age. But I do know that the clarion call has gone out for men. And everywhere—in politics, in religion, in business, and professional life, the demand is for high-thinking, clean-living, purpose-filled men. Men with visions, men who can see, not only the immediate needs of themselves and their business, but men who can look ahead with undimmed eye into the future of their profession and see somewhat of the needs of their children's children and who are willing to burn the midnight oil, not that they may leave to them vast fortunes, but that they may improve to the very limit of their capacity the conditions under which those future generations shall live.

I read the other day of an oculist in New York who asked of a lady who came for the examination of her eyes, the apparently irrelavent question, Has your house a high roof? higher than the surrounding houses? When she answered in the affirmative, he said: "Go out upon the roof for an hour every day and take a long range view; your eyes and many other pairs of eyes in New York are suffering from a contracted range of vision."

And I thought as I read it what an illustration of the great need in the world today. Men's souls become weazened and their lives shriveled because of their contracted vision. This truth is illustrated by this significant thing which I read the other day, the authenticity of which I cannot vouch for, but the lesson is there just the same. It was intended to be funny, and would have been if the truth in it were not so pathetic. A rather elderly man with his wife, who proved to be a bride, engaged rooms at one of the big hotels in New York city. The old man who was having the time of his life taking in the sights, was so ingenuous in his remarks and so cordial in his invitations to the clerk to join him and his bride in their sightseeing, and so profuse in his admiration of everything he saw that he finally succeeded in arousing the curiosity of even the bronze figure of the hotel clerk to the point of asking him where he was from. "From New York," came the reply. "From New York—right here in New York?" said the clerk. "Well, will you please tell me what you have been doing all your life?" "Why, certainly, I don't mind at all. My grandfather used to own a farm right here in Manhattan, and I'm in the real estate business. My office is just around the corner not two blocks away. I own the land this hotel stands on, but you see I've been too busy to see much of the town or to fall in love and get married; but now that's come about and I'm just beginning to find out what a good old town we've got; come on out to the show with us tonight?" Now, as I said, this was intended to be funny, but it tells the sad story of many a life, shut up within the four walls of a counting house or an operating room. Not coming in touch with other men's lives in any adequate way at all, with no proper *outlook* upon the life that is, and with *no up-look* whatever to the life that is to come.

And because such things are, my thought and my sympathy goes out today to the young men of our profession. And to you men who are older, who have the prestige of leadership, and especially to any who may have the responsibility of teachers of young men, I would say, *aim high.* Never in our history as a profession have we been confronted by so great opportunities and consequent responsibilities. The wisdom of the wise, and the art of the inventor are at our command as never before. Vast fields of useful service to our fellow men undreamed of by our fathers, are opening up to us. The eyes of the world are being turned in the direction of our profession and its possibilities, in an interested and an expectant manner. The pertinent question, it seems to me, for each of us is: Am I keeping abreast of the situation? Am I keeping step with the leaders? Shall the car of progress in its onward march bear me as a passenger, or shall it be a juggernaut crushing me under its cruel wheels, because I have not ambition and purposefulness enough to keep out of its way?

Too many men are satisfied with a mediocrity that is little less than criminal. I realize, of course, that it is not given to many to rise to fame, but I am not talking of that. Fame is not the *summum bonum* of life. What I am pleading for is that we shall make the most of ourselves professionally that is possible to be made of us. When the great teacher said to His disciples, "Be ye perfect, as your Heavenly Father is perfect," He did not mean be perfect Gods; He meant be perfect men. And I maintain, though it is not a popular doctrine, that nothing short of perfection, whether it be christian perfection or scientific perfection or mechanical perfection, is a sufficient goal for our ambition. And if we are to be entrusted with the care of human mouths, and wish to be looked upon as a learned profession, we must not be satisfied with mediocrity in the performance of our duty.

I believe there has no one thing come to the profession with the last decade that has been, and will prove to be, a greater boon to both operator and patient, if wisely used, than the gold inlay, and yet I cannot but raise my voice in a note of warning, for I am afraid it is being used and its use is being taught, to the sacrifice of operative skill. Not that it does not require operative skill to make a *good* inlay; but I believe there is nothing that makes for manipulative ability, and that so conserves a man's honesty as the proper cavity preparation for and the proper building of a *good* gold foil filling. And the mere fact that it is so easily possible to cover up slipshod work for at least a considerable period of time in gold inlay work, becomes a temptation to many a man that proves his undoing, not only in inlay work, but in other lines as well. For, if the flag of honor is once lowered, it becomes easier to drag it in the dust than to raise it again on high.

That there is a feeling on the part of young men generally who are coming into the profession, that no great amount of intelligence or application is necessary in dentistry is quite evident to any one who has opportunity to know. I approach this portion of my talk with fear and trembling, for I realize that I am treading on dangerous ground, and nothing but my jealousy for my profession and my interest in the well-being of those who make it their choice, as well as those who must suffer from its insufficiencies, would lead me into this discussion. I want it understood that what I say, probably does not apply to all colleges, and certainly does not apply to all their graduates, for many of them are as well fitted for their work as could possibly be expected in three years of college work; but my short experience on the Board of Dental Examiners of my state has convinced me that something is radically wrong somewhere. Either the colleges of the country are woefully lax in their observance of the law governing the admission of students, or else they are criminally derelict in their duty to many of the young men whom they admit. It seems to me that to take a man's money and time for three years when they know, or ought to know, that it will be next to a physical impossibility for him to pass any self-respecting State Board, and that if he does he will always be a blight on the profession, is as morally wrong for a college as it would be for a man, for instance, to place a six-tooth bridge on two pyorrhea abutments, for the sake of the fee, when he knows that within a year the whole thing will have to go to the scrap heap.

There are men coming before all of our boards asking for a license to practice dentistry, who have spent three years, maybe four, and all the money they could save or borrow, in preparation for their work; perhaps their father and mother have mortgaged the farm or home to provide the means; perhaps the young man has a wife and little family dependent on him, and he ought to have been told in his freshman year that he was making a great mistake.

But, no; the Boards of Dental Examiners are expected to be the watch dogs of the profession. The young man goes through our most reputable schools, they taking his money year after year, and is finally graduated, although, when pinned down to it, the authorities of the school say they know he ought not to have been, and ask, "But what could we do?" Aye, that's the rub, some of you answer, what? The thing that *is* done is; he is given a diploma and comes before the State Board with the assurance that he has finished his course and the assumption that he is qualified to practice dentistry.

As a matter of fact in very many instances he has not touched the rim of the question, and when given an opportunity to demonstrate his ability before a board constituted for that purpose, he proceeds without even a suggestion of trying to get his patient and chair adjusted to each other and to himself for convenience of operating. If he is going to operate on the second bicuspid he adjusts the rubber dam to, at the very limit three, teeth, sometimes only two. His ideas of correct cavity form are about as hazy as his ideas of Hebrew. He makes fillings in large cavities in the proximo-occlusal surfaces of bicuspids and molars with cohesive gold throughout, and finishes them without any proper concept of the relation of contact to interproximal space. Gentlemen, I am not overdrawing the picture in the least.

And I could give you instance after instance that has come under my personal observation in the year and a half that I have been on the board, where men have shown such deplorable lack of knowledge of the rudiments of operative technique that it has been a constant source of wonder and chagrin that any college would be guilty of turning them out as finished products, for they simply do not *know* the things they have a right to know.

Now, what I want to ask is, what is the trouble? Who is to blame that they do not know? Have they not paid their money to know? If they do not know, and do not know that they do not know, whose fault is it?

Ten or fifteen years ago a graduate might have been excused for not knowing these things, but that day ought to be past and gone forever. The teaching force of our colleges of today ought to be composed of men who see things in their right perspective and who put first things first. I mean in the way of dental education. That Utopian dream when men shall really put first things first, and in all our schools and colleges, professional and otherwise, shall teach men that first of all they shall be *men,* and after that they shall be dentists, and physicians, and teachers, and engineers, and artisans, seems so far distant that I am not talking of it now, although I like to think about it and to dream of what a delightful place this old world will be when that comes to pass. But just now I was thinking of the product of our dental colleges, for you and I know that the dentists of today are the product of the colleges of yesterday and the dentists of tomorrow will be the product of the colleges of today, and if they are to see things right and properly fulfill their mission to their age, you and I must widen our horizon; we must be willing to sacrifice something of ease and pleasure; we must be willing, if need be, to let go some of the emoluments of our calling that we may lay broad and deep the foundations of the future greatness and usefulness of our profession.

Much is being written and said of the education of the public to the need of dental service, and of oral hygiene, all of which is right and proper, and I believe that you and I ought to take our places in the forefront of such a movement in our communities. But my dear fellow practitioners, as we contemplate some of the awful tragedies that we see in the mouths of many, many people coming from incompetent and mercenary dentists, does it not occur to you that we vastly need to stimulate a greater intelligence on the part of the profession, before we too greatly stimulate the enthusiasm of a public that cannot discriminate between good and bad dentistry. We need to hold up constantly before the men of the profession the need for paying strict attention to the fundamentals of the work, as well as that they shall put conscience into it. Of what use is it that men shall know, unless they put into practice that which they know. I had rather, and so would you, put myself and my family into the care of one who lacked a little in proficiency if I knew that he would conscientiously *do every time the very best he knew,* than to put them into the hands of one of reputed skill but who had no conscience-ideal, if I may use the term.

Greater intelligence in the performance of our operations and an absolute adherence to what we know to be right should be our ideal, and the man without such an ideal toward which he is working is like a ship steaming out of the harbor, clearing for no particular port and with no steersman at the helm, the chances are ten to one that before the voyage is over he will be a derelict, wrecked upon the rock of professional dishonesty.

We of the profession need to demand of the colleges a more strict adherence to the rules governing the association of faculties in the admission of students. It is unfortunate, but I am sure it must be true, judging from the mental gymnastics of some of the graduates, that the colleges, or at least many of them, are lax in that particular. It is a matter that is hard to control and in which we must depend largely upon the honor of those in authority. You know James Whitcomb Riley says:

"The meanest man I ever saw
Allers kept inside the law,
And ten times better fellers I've knowed,
The blamed grand jury's sent over the road.

The colleges need to demand and enforce the highest type of teaching on the part of professors and demonstrators. *We* look for them, and the student naturally *expects* them to be in the front rank so far as dental knowledge goes. And undoubtedly many of them are, but I feel sure that many times those principles and methods that are taught didactically in the lecture room are not carried out in the infirmary.

Gentlemen, I am not a pessimist, though this essay may seem to have something of the Jeremiah note; but as I stand at this point and look away into the vast stretches of the future and see the multitudes of unborn men and women and children, who of necessity must depend upon our profession for much of their comfort and usefulness in life, I am made to feel that the responsibilities that confront us are such that if we would be true to them, and true to our forbears in the profession we must enlist every faculty of our being in the fight for better things. We must not be content with anything less than perfection as our ideal in the performance of our duty. We must climb the heights where the air is free and we can breathe the pure ozone of those who conquer and dream dreams and see visions, and then we must buckle on the armor and bring to pass the things we saw in the vision. That is what marked the difference between Wilber Wright and Darius Green, both of flying machine fame, and that will mark the difference between success and failure in any line of endeavor.

And so I come back to my first proposition, that in dentistry, no less than in any calling we want men of broad vision, men of large faith—in themselves and in their fellow men; men who can face large responsibilities without shrinking, men who are willing to sacrifice themselves if need be for others; men, who when confronted by a disagreeable duty, will discharge it honorably, at whatever of personal cost; men who have quickness of perception to see the right, and the moral fibre to do it. In short:

> "Men to match my mountains;
> Men to match my inland plains;
> Men with empires in their purpose;
> Men with eras in their brains."

THE PROBLEM PRESENTED TO THE PROFESSION BY THE CONDITION OF THE TEETH OF OUR PUBLIC SCHOOL CHILDREN.*

BY C. N. JOHNSON, M. A., L. D. S., D. D. S., CHICAGO.

The approach to this subject leads us into so many by-paths, all of them important, that to follow each to its legitimate end would involve more time than we have at our disposal on this occasion. We must therefore content ourselves with a brief glimpse at some of the most significant factors which affect us in attempting to inaugurate the plan of caring for the teeth of the school children of this country. It must be admitted at the outset that the period of youth is the most important time in the life of the individual so far as the problem of saving the natural teeth is concerned. Decay of the teeth is essentially a disease of youth, and if we can control it through that period we can usually control it through life.

The first step in a movement of this kind is to ascertain the precise condition of the teeth of the children of our country, and the only way in which we can do this with any degree of accuracy is to make a systematic examination of the teeth of those attending our public and parochial schools. When this is done it will be found that the actual conditions in existence are well nigh appalling. All of the reliable statistics at present available go to prove that at least 95 per cent of school children are affected by some form of dental disorder. In Chicago the Odontological Society established a free dental clinic in the Ninety-third street school some months ago under the care of Dr. F. F. Molt and a corps of most efficient and painstaking young practitioners in that vicinity. A careful examination has been made of more than 600 children, with the result that fully 97 per cent of the children examined are in need of dental service. In no locality with which I am familiar has the percentage run below 90.

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*Read at the annual clinic of the G. V. Black Club of St. Paul, February, 1911.

Let me pause long enough to ask what this means for the future well-being of our people if this state of affairs is allowed to exist? I am no alarmist, nor do I need my own statements to call attention to the possibilities of harm from a neglect of such conditions as these. Dr. W. A. Evans, health commissioner of Chicago, has made the statement that aside from the direct disability to children from toothache and alveolar abscesses, and the consequent poisoning of the system by swallowing the contents of a neglected mouth, there is a grave danger of serious infections arising from the harboring of pathogenic micro-organisms in the cavities of decayed teeth. He has cited cases where children having gone through attacks of diphtheria and scarlet fever, and having been dismissed as cured, have carried infection to others through no other possible medium than the receptacles formed for the retention of the germs of these diseases in carious teeth. There is in the United States today no more efficient health commissioner than Dr. Evans, no man who has more at heart the welfare of the people, and no physician who has a more intelligent grasp of the true relationship between the conditions of the mouth and the general health. It is largely through his influence that the present movement in Chicago was inaugurated tending toward the amelioration of the conditions existing in the mouths of school children.

The fact then that there can be no question as to the urgent necessity of doing something leads us to the next consideration which relates to the most efficient means of inaugurating the work.

In various cities throughout the country some exceedingly praiseworthy movements have been set on foot and it would be of interest to consider them in detail, but we must content ourselves with a few brief references which at this time seem significant.

In Rochester, N. Y., a free dental clinic has been in operation for some time and the impression it has made on the public is well illustrated in a recent occurrence which took place in connection with it. Mr. William Hodge, the actor, offered to present $1,000 to the most worthy charity of Rochester in appreciation of his childhood home. The matter was to be decided by a committee composed of the managers of the theatre at which he was playing. His Honor the Mayor, and Mr. Hodge. After listening to arguments presented by the medical health officer, the Board of Education, superintendents, supervisors, and principals of the public schools, the award was made to the dental clinic. This shows the esteem in which the work of the clinic is held by the best citizens of Rochester.

In Cleveland, Ohio, a very vigorous campaign of oral hygiene is under way, which promises some very astonishing results. A close study is being made of the effect of caring for the mouth and teeth on the physical, mental and moral status of the pupils of a certain school. The detailed report is not yet at hand, but enough is known to show the significant fact that not only physically and mentally but even morally there is a wonderful improvement in the children undergoing this test. The reasons for this are not far to find if we had the time to go into them, but suffice it to say that in entering upon a work of this kind we are really exerting an influence of far greater magnitude than even the most sanguine of us are apt to imagine. I have never contemplated any movement in our profession with so much seriousness and enthusiasm as I do this one.

In Chicago, in addition to what is being done under the auspices of the Odontological Society, and also a free dental dispensary started by the Englewood Dental Society in conjunction with the United Charities of Chicago, the Chicago Dental Society has appointed a committee known as the Public Service Commission, to inaugurate a campaign of education and dental service among the school children of the city. The plan is to make an examination of the teeth of all the school children or at least as many of them as is practicable. I doubt if any one who has not done some careful figuring can realize the enormity of this task. There are in the public and parochial schools of Chicago about 500,000 pupils. Supposing one man should start out to examine the teeth of these children and make proper records. He could not do his work thoroughly and average more than one child every five minutes. Considering the length of the school day and the number of school days in the year, it will be found that it would take him more than forty years to complete the examination; or, in other words, it would take forty men at least one year. We are asking for one hundred volunteers from among the very best men of the profession in Chicago to make these examinations, and while we may not be able to cover the entire field completely we shall at least make a sufficient number of records to prove the significance of our work. We do not favor making anything compulsory in this campaign, so far as the parents or the children are concerned. Nor will it be deemed neecssary in certain districts where children are already well cared for, to make extended examinations. But we aim to make our work very thorough so far as we go.

Our plan in these examinations is to make a record in triplicate of the conditions found in each mouth, one copy to go to the health department of the city of Chicago, another to the parents of the child, and the other to be retained by the society. Data from these records are to be compiled for the benefit of the committee on oral hygiene of the National Dental Association.

On the back of the record slip which goes to the parents is printed information regarding the importance of caring for the teeth and mouth as well as brief instructions for carrying out the work on the part of the patient. This slip is different in color from the other slips, and the instructions are signed not by any member of the committee nor by any dentist, but by the superintendent of schools. This is done to avoid any possible suggestion that the members of the profession who are carrying on this movement are seeking self-glorification in any way, and also with the idea that the name of the superintendent, which is so widely known in the city will carry more weight.

In addition to the examinations an educational campaign is to be inaugurated regarding the importance of oral hygiene. Lectures are to be given for the benefit of parents, pupils, and teachers in the various school buildings, and pamphlets are to be prepared containing more detailed instructions than those on the back of the examination records, and these are to be distributed freely in the school communities.

In different sections of the city, wherever this can be made feasible, free dental clinics will be established for the care of the teeth of the very poor. And herein lies a danger to which we belive we are fully alive, and which we hope to avoid. It is not our intention to foster pauperism in our city, nor to encourage indiscriminate charity. We do not wish to infringe on the field of legitimate dental practice in any section of the community. I have always maintained that the moment an individual of responsible years reached out his hand and accepted something for nothing he began to become demoralized at that moment. So we propose to have a careful guard over our charity. And yet the fact stares us in the face that very many of these children are suffering from dental disorders and are thereby handicapped in their fight for education and position, and many have parents too poor to pay for dental service. If we are to do our duty by the community we must care for the dental ills of these children till they reach an age of individual responsibility. The thing to do is to carefully discriminate between the deserving poor and the pretender, and the only way to do this is to get an insight into the home life of the children.

Our proposed plan of doing this in Chicago is as follows: In the public health department there are a number of young women known as school nurses, whose duty it is to follow up the records of the children reported in ill health, and go into their homes and learn the real conditions of life existing therein. They find out about the earnings of the family and the actual necessities of each case, and it is largely upon their reports that we purpose dispensing our dental charity.

Of course it is always understood that if a child is suffering pain, no matter what the home conditions may be, that pain is relieved at once without question. It is the bounden duty of the professional man to relieve pain at all times and under every circumstance absolutely irrespective of any financial consideration, but further than this he is not obligated to go with any individual who is not legitimately an object of charity.

To most people the establishment of these free charities would appeal as the chief and more important function of our committee's work, but this is by no means the case. Dr. W. G. Ebersole of Cleveland, Ohio, chairman of the Oral Hygiene Committee of the National Dental Association, and a man who has given more thought and attention to this kind of movement than most men, states in a letter to the writer that this is of minor importance compared with the education of the people as to the actual conditions present in the mouths of school children, and the benefits to be derived from properly caring for these conditions. While a very real and very urgent need exists for the establishment of these clinics, yet the extent of this free work will probably not be so great relatively to the amount of work which actually needs to be done as one would at first imagine. Our experience in conducting the free clinic at the Ninety-third street school in Chicago has developed a peculiar fact. Dr. Molt and his associates report that when the record slips are sent to the parents, they for the most part send the child to the neighborhood dentist to have the work done rather than to the free school clinic. This is most encouraging and is in perfect accord with what Dr. Ebersole writes me from Cleveland. It goes to show after all that what the people really need is education and direction rather than free service.

To those who contemplate taking up this work in their respective communities it may be well to offer some suggestions as to the best methods of inaugurating the movement. First, it is necessary to enlist the co-operation of the public school officials, such as the Board of Education, the school superintendent and the school principals. The source of authority is of course the school board, but in order to gain the consent of this board it is frequently necessary to first make an impression on them through the medical health officers who if properly informed are in a better position to convince the lay public of the importance of the work than any one else.

Fortunately it is today not so difficult as formerly to get the ear of public officials on this subject. As an illustration, ten or twelve years ago a committee appointed by the Odontographic Society of Chicago approached the then board of education to be permitted to do this kind of work and were unceremoniously refused. A few months ago when the Chicago Dental Society appointed a similar committee we were able to gain the consent of the school board without even appearing before it. The superintendent of schools, who, by the way, is a woman, Mrs. Ella Flagg Young, and one of the most efficient superintendents Chicago has ever had, merely requested the chairman of the committee to present in writing the details of our plan, and with this statement as her argument she convinced the board of the desirability of the movement and permission was at once granted. It is probable, however, that our way was made clearer by reason of the influence of our health commissioner, Dr. Evans. In any event the importance of oral hygiene is becoming so widely recognized among medical health officers and other public officials that it is no longer a difficult matter to secure consent to carry on this work.

When this is gained then the burden of doing the work properly must fall upon the dentists and if it is done under the auspices of the leading dental society of the community it is thereby placed upon a more permanent basis than by any other plan at present possible. I say at present possible, because I have visions of the future when this matter will be made a part of the civic administration in connection with the regular health department. In the city of Strasburg, Germany, the authorities, long since recognizing the importance to the public health of sound teeth among the children, have established a clinic manned by dentists employed by the municipality where the teeth of the poor may be properly cared for. This is the best investment which any city government could make so far as the future welfare of its citizens is concerned.

The first state recognition of oral hygiene as a public health measure in this country was made recently in New York, where the state commissioner of health, Eugene H. Porter, appointed Dr. H. L. Wheeler and Dr. W. A. White as lecturers on oral hygiene for the State Department of Health. But so far as municipal financial support is concerned that is a matter for the future to develop in the United States, which at once brings us to the consideration of ways and means for carrying on this work at present. We must first be able to demonstrate to city councils the importance of this work as a civic economy before we can consistently ask for appropriations. When they are shown that by proper care of the teeth and mouth, thus influencing the general health, a child may be able to do school work in three years which under present conditions requires the same child four or five years, it will at once be seen that from a mere mercenary point of view there will be a saving to the city by inaugurating this movement. If the cost of teaching that child the extra one or two years were expended on the child's nutritional apparatus it would not only tend to a better physical condition of the coming generation, but would eventually improve society morally, and save the city much needless expense in the prosecution of criminals. This question is more far reaching in its effects than you or I can see at present, and I regret that time will not permit me to go more fully into this phase of it on this occasion.

At present it devolves upon the dentists to devise ways and means, though this is a burden which they should never be called upon to bear. If they give of their time and energy freely, as most of them are willing to do, their efforts should be supported financially by wealthy citizens who are only too glad to contribute to a charitable cause when they are convinced of its worthiness. In the city of Boston a gentleman of the name of Forsyth has started a foundation which is ultimately to reach $2,000,000, for the care of the teeth of children up to age of 16. Already a building is being planned suitable for the purpose and we predict that the Forsyth foundation will prove one of the most beneficent charities ever instituted in Boston.

In Chicago our present clinic was furnished by the liberality of dental supply houses, but we feel in all conscience that we have asked sufficient of them already, and we are now working on a plan of raising funds from our worthy citizens. And we will raise them.

In conclusion let me impress upon you the fact that if dentistry is to assume its rightful place in the estimation of the world it must move one step upward in professional status by inaugurating and carrying to a successful issue the work of caring for these poor children. In every profession of any worth there is necessarily much of self-sacrificing effort for the welfare of the commonwealth. Our relation to society is different from that of the tradesman or merchant, and demands of us more of a personal sacrifice for the public good. Our opportunity is here and we must take advantage of it. We must prove to the world the benefits of our ministrations and do our allotted share in adding to the betterment of the race. When we do this the municipalities will support our efforts, and our profession will take its proper place as a humanitarian calling.

THE ANATOMICAL PHASES OF ARTICULATION.*

BY DR. E. B. OWEN, ST. LOUIS, MO.

In this paper it is the intention of the writer to emphasize the facts which have already been brought out regarding anatomical articulation, rather than to present new thoughts.

That the theory of arranging teeth on artificial dentures after nature's own plan is correct, has been proven by many of the greater lights of the dental profession, such as Prothero, Snow, Gritman, and others.

It now remains, for us to discuss the practical application of the principles set forth by these men. Let us first consider briefly a few of the steps which must be accurately carried out in order to obtain the results desired. First, it is necessary that we understand the relation of the mandible to the condyle, and also such jaw movements as are carried out during the process of mastication. Second, we must be able to establish a like relationship between the models upon which the dentures are to be constructed and the joints of the articulator or occluding frame, capable of reproducing normal jaw movements. Third, the inclination of the condyle paths, which ranges from horizontal to an angle of fifty degrees, must be registered on the occluding frame that mathematical correctness in the jaw movements may be reproduced: this will also guide us in establishing the curve of Spee, which will be mentioned later. Fourth, the preparation of a rigid base plate with wax rims on which may be registerd such information, as facial contour, high and low lip lines, median line, etc. Fifth, the selection and articulating of the teeth along lines which will as nearly represent the natural organs as possible.

Referring back to the first of these steps, it must be borne in mind, that in most cases the condyle moves downward and forward, a fact discovered by Dr. Walker of New Orleans, in 1894, and which has been proven time and again by others since that time Now it is this fact particularly upon which anatomical articulation is based. If the teeth in the human skull are viewed buccally, it will be found that the teeth assume a curved arrangement the convexity being downward. Now if the curve intersecting the cusps of the teeth on either side be extended backward, it will either coincide with the curve of the condyle path or be parallel to same Thus we have established a relationship which must go with us in the arrangement of the teeth. (Fig. 1.)

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*Read before the St. Louis Dental Society, December 6, 1910.

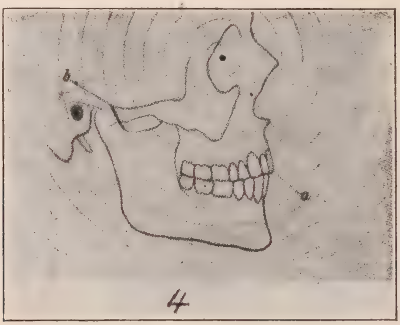

Fig. 1

If another arc with the same radius centering in the median line be struck laterally (fig. 2), it will be found that this intersects the buccal and lingual cusps of the teeth on either side. This first curve, from before backward, is familiarly known as the curve of Spee, from a man who discovered it. The other is known as the lateral curve. This necessarily means that the lingual cusps of the lower teeth assume a lower position than the buccal cusps, depending on the curvature of the condyle paths. The lingual cusps of the upper teeth also assume a relatively lower position.

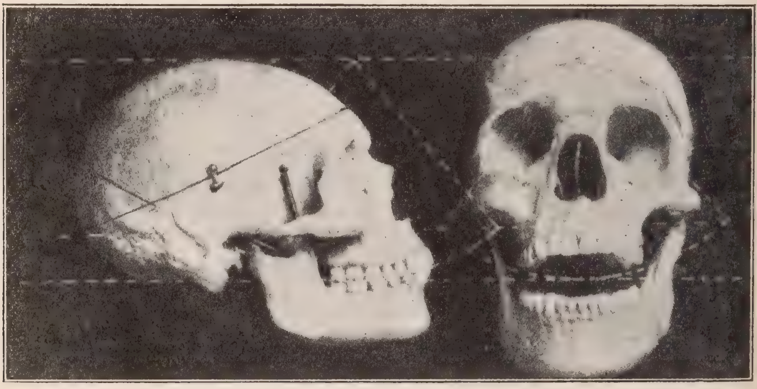

Fig. 2

Now a few minutes in considering the movements of the jaw and the contact of the teeth during these movements. The jaw undergoes three movements during the act of mastication. First, the hinge movement; second, the protrusive movement, and, third, the lateral movement.

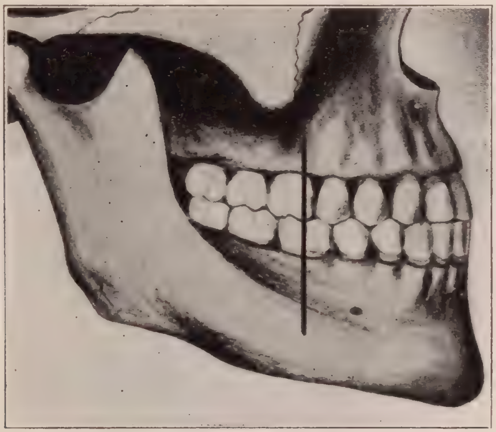

Fig. 3

When the teeth are brought together normally by the hinge movement (fig. 3) of the jaw, the buccal cusps of the bicuspids and the molars fall within the mesio-distal grooves of the upper bicuspids and molars, while the lingual cusps of the uppers fall

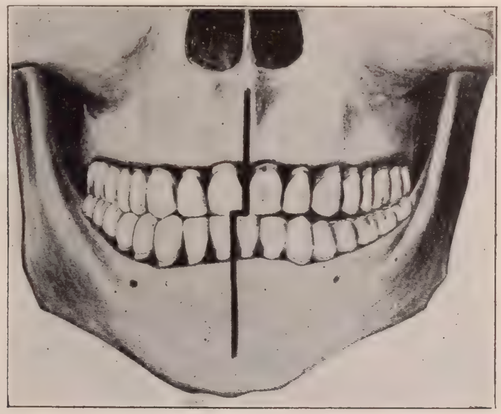

Fig. 4

within the mesio-distal groove of the lowers, and the buccal cusps of uppers falling in the interproximal spaces or buccal grooves of the lower, the anterior teeth slightly over-lapping the lower. In the protruded position, the lower jaw is carried forward sufficiently to bring the buccal cusps of the lower teeth in direct alignment with the corresponding cusps of the upper teeth, and the anterior teeth in an end to end position. In the lateral movement one condyle becomes a pivot, while the other condyle moves back and forth in its path, and during this movement the teeth on the pivotal side are in contact from the median line to the last molar (fig. 4).

The buccal and lingual cusps of the upper and lower bicuspids and the molars are in direct opposition to one another, thus forming a continuous rectangular groove throughout the extent of these teeth. Now in the sliding back and forth from this lateral position of the teeth to normal again, the food is forced into this rectangular groove and thereby mastication in a forceful manner is carried on (fig. 5).

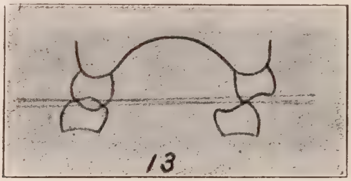

Fig. 5

Now on the opposite side during this lateral position of the jaw, we have a contact of the teeth usually at but one point, this falling as a rule, on the mesio-lingual cusp of the last upper molar with the disto-buccal cusp of the lower last molar. This latter point of contact is known as the balance contact, as it prevents the tipping of the dentures during mastication, and it is only through this one point that the greatest force of the jaws can be brought to bear in crushing the food. Thus we may see the importance of a correct registration of the natural condyle path and a similar adjustment of the condyle grooves on the articulator, for unless this step is accurate, the arrangement of the teeth on the articulator will not be the same in the mouth. Here is where Dr. Bonwill, the man who first gave us an idea of anatomical articulation was halted in the practical application of his theory, since he believed that the condyle path in all individuals was horizontal.

From investigations from natural subjects, we find in some cases that the condyles do move forward on a horizontal plane, and in those cases the arrangement of the teeth is flat from before, backward (fig. 6). However, in most cases the condyle has been found to move downward and forward on a curve. Now in this individual if the teeth are arranged horizontally and the mandible moves downward and forward, the individual with a mechanical instinct can readily see that in a protruded position of the jaw, the anterior teeth would be thrown forcibly together, while there would be a sharp separation of the teeth of the posterior region. This condition always results in a tipping of the dentures, and here can be seen the importance of arranging the teeth on a curve corresponding to that of the condyle path. Then, instead of tipping the teeth during the protrusive movement, they would glide over one another and remain in contact all the way from before, backward.

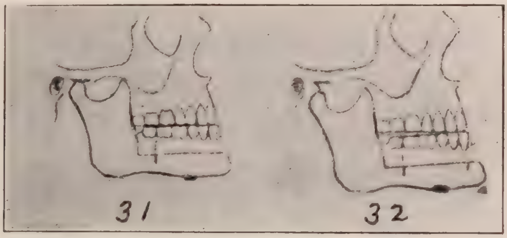

Fig. 6

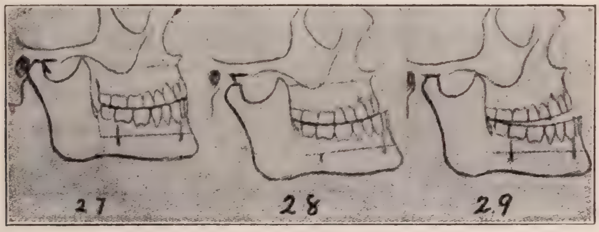

Fig. 7

On the other hand imagine the individual who has a horizontal condyle path trying to make use of dentures arranged on a curve from mesial to distal. During the protruded position of the jaw in this case, there would be no contact of the anterior teeth whatever, while there would be a forcible contact on the posterior teeth. Every one of you have had this happen during your practice (fig. 7).

I will now take up a few of the practical steps in establishing anatomical relationship of the teeth. Presuming that we have good models to start with, it is next necessary to adapt rigid base plates to these models, then arrange a wax rim following the ridge of each model, which approximates the length of the teeth and about one fourth of an inch in width. It is important that these wax rims should be flat from mesial to distal. The base plates are then carried to the mouth and the wax rim on the base plate is modified to represent the exact length of the superior teeth. It is also necessary to pay special attention to the restoration of the facial contour, modifying the contour of the wax rims to represent the contour you wish to restore in the finished denture. We also make a record on this wax rim of the high lip line, the median line, and the corners of the mouth: the distance from the median line to the corner of the mouth representing the width of the three anterior teeth (fig. 8).

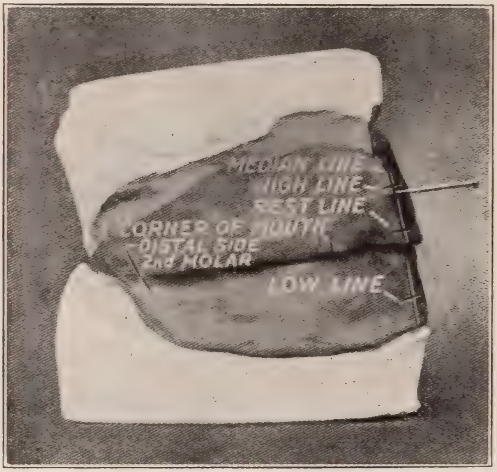

Fig. 8

The lower base plate and wax rim is now placed in the mouth and modified, so that it comes in contact with the upper wax rim when the lips are in normal repose. This regulates the distance the jaws are to be held apart by the artificial dentures. It is unnecessary to pay particular attention to the restoration of facial contour in the lower wax rims, as this of necessity must correspond to the contour already established in the upper rim. Thus we are ready for the normal registration of the relation of the jaws, or taking the normal bite. The device made use of for transferring the bite plates from the mouth to the occluding frame, thereby giving you the correct relation of the models to the jaws, and mounting the models in a way that they will reproduce any peculiarities of the individual, is known as the Snow face bow (fig. 9). This was given to the profession by Dr. Snow of Buffalo, and consists of a bow, a stem which is to be attached to the upper base plate, a central clamp, a slide rod on each side and two clamps which control the movements of these slide rods.

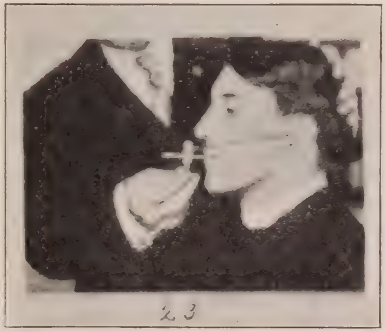

Fig. 9

Now the base plates being ready for the normal bite, the upper base plate is removed from the mouth and the stem of the face bow firmly attached thereto, the base plate carried back to the mouth and the patient instructed to close. Especial care should be taken in this step to see that the condyles rest in their normal position in the glenoid fossae, as there is a natural tendency on the part of the patient to protrude the lower jaw on account of the extra bulk in the mouth and the weight of the stem which is attached to the wax rim. The relation of the jaw being thus obtained, the stem is passed through the central clamp of the face bow and the slide rods are placed on the end of the condyle, which points are easily obtained by placing the finger about one-half inch anterior to the external auditory meatus and having the patient open and close once or twice, and these points should be previously marked with a colored pencil that you may make no mistake in getting the slide rods directly over them. The little knobs on the end of the slide rods should be the same distance from the bow, and the clamps controlling these slide rods are tightened to hold them in position while the operator tightens the central clamp over the stem. This being done and the bite plates having been firmly attached to each other by searing the wax and pinning them together with staples, the face bow and the bite plates are held in firm relationship. The slide rods are now loosened and drawn out and the bite plates together with the face bow are removed. The models are placed in their position in the base plates and placed between the bows of the occluding frame. The slide rods now being pushed all the way in, just fit over the joints of the occluding frame. Thus you have the models mounted in the same relation to the joints of the articulator, that the natural alveolar planes bear to the condyle.

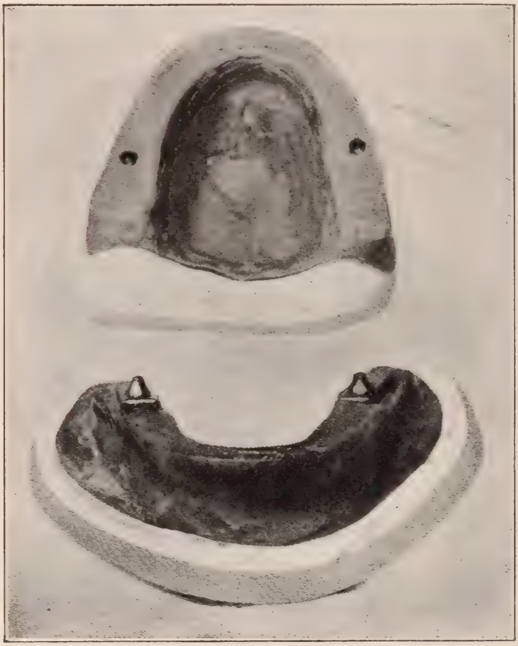

Fig. 10

The next step, an exceedingly simple one yet very important, is the registration of the downward slant of the condyle. The models now have already been mounted on the articulator in a normal position and all screws tightened and set to hold them in their relation; the base plates are now removed from the models; now remember that, as previously stated, the occlusal surfaces of the wax rims are flat, from before, backward. Now if these base plates are placed in the mouth and the patient is instructed to protrude the lower jaw and close the wax rims together, if the jaw moves forward on a horizontal path, then these flat wax rims will maintain their contact all the way back. On the other hand, if the jaw moves downward and forward, which is usually the case, these base plates will be in contact in the anterior part of the mouth and separated at the heel.

If we have some means of measuring this distance that the rims are separated, and holding them in that position, we will have a means of registering this downward slant. This is done by means of the little bite gauge (fig. 10), which was also furnished the profession by Dr. Snow. This little device consists of two parallel sides and a screw-like projection on top. This is placed with the parallel sides in the wax in the molar region of the lower wax rim. leaving the little screws projecting upward. These are placed one on each side of the wax rim. Now with these little bite gauges in position and the patient instructed to protrude the lower jaw and close, the separation at the heel is marked by these bite gauges and the rims are fastened together as they were in taking the normal bite. These being removed from the mouth in this protruded position, with the base plates in contact in the anterior part of the mouth and separated in the posterior region are carried to the models on the articulator. These having been mounted previously in a normal position, will, of course, not go into position in the base plates, which are in a protruded position. It then is necessary to disconnect the controlling spring on the articulator, which allows a more or less rotary movement of the upper model. This will allow the model to move back or forth sufficient to accommodate the protruded position of the base plates. Yet it is found that the models still will not set down in position. This is due to the fact that the condyle paths on the articulator are not set at an angle similar to that of the natural condyle. But if the clamps controlling these condyle slots are loosened allowing the slots to move up and down freely and the models then forced to position in the base plate, it will be found that these slots will adjust themselves to a certain position, that the models may rest firmly in the base plates. This position of the condyle slot represents the slant upon which the natural condyle travels, and the clamps are tightened holding them in that position.

The staples and the bite gauge are now removed, the controlling spring again connected and the models resume their original normal position. The only difference now and when first mounted, is that we have changed the condyle slot, from an incorrect to a correct position.

These wax rims which have so much information registered upon them (fig. 8), must not be lost now in the articulating of our teeth. They should be modified from flat planes to curved surfaces and by repeated trial with the lateral movement of the occluding frame should be made to slide against each other during lateral and protruded movements, without having their contact broken. If the spherical ideas which were presented in the first part of this paper are kept in mind, this curved surface can be easily and quickly obtained. The lingual surface of the lower rim should be trimmed away to give the lingual inclination of the occlusal surfaces of the lower teeth and likewise the lingual surface of the upper rim should be built down a corresponding distance. Now this curved surface being established, will serve as a chalk line to be followed out in the arrangement of the teeth. The millimeter measurement and the selection of the teeth will not be touched upon in this connection, but I will say that for the best results we should use the new anatomical mould of teeth, which has recently been put on the market by the Twentieth Century people. They require very little grinding and their forms are more natural and they not only add to the usefulness, but very much to the appearance of the dentures.

Now in addition to following the curve in the wax rim representing the curve of Spee, we must also in the articulation of our teeth follow out this same contour that we have in the wax rim, since that is the contour we wish to restore in the finished denture. This is done by cutting out a plug of wax of sufficient length, width and depth to receive each tooth.

In arranging artificial dentures we usually start the uppers at the median line and set up the entire upper denture first, then starting the lowers with the first molar, the second molar and second bicuspid. We do this in order that the relation of the occluding teeth may not be thrown off by any undue width of the lower anterior teeth. These steps having been followed we have dentures, that, when in a lateral position maintain their contact along a three-sided figure, from central incisor to second molar on one side and on the second molars on the other side. Thus we get the term, "Three point-contact."

PRESIDENT'S ADDRESS.*

BY D. M. GALLIE, D. D. S., CHICAGO, ILL.

Members of the Illinois State Dental Society and Friends:

One of the duties of the president of this organization is to deliver what is known as the President's Address. As a society you have had forty-six addresses, and it would seem at first thought as though there was little left for the forty-seventh to write about. The addresses of the past have been delivered mostly by men who have been great factors in the development of the profession in Illinois, the name and fame of many will go down in history as great men of a world-wide profession; by pen, voice and clinical skill they have cleared the way and made smooth the path for the dentist of today.

Many of these addresses were in the form of scientific essays, some dealt in generalities, others peered into the future and foretold the wonderful achievements possible for the dental surgeon, while others looked backward and recalled men and deeds of the past. It is not my purpose to indulge in retrospection or prophecy, instead I ask you to join me in the consideration of a question of present time importance. If a title were necessary for this address I think I would call it "The Time, the Place, and the Work"—the time today, the place Illinois, and the work our duty to the commonwealth.

We see from all directions a great wave in favor of preventive instead of curative means of handling all of the diseases to which mankind is heir. The best minds in medical, sanitary and hygienic science are busy working on ways and means of bringing about better health conditions. These scientists are backed and encouraged by the generosity of philanthropists and public spirited laymen, who have provided wonderful institutions and laboratories for research work, yet I doubt if any branch of the healing art is receiving greater consideratoin than the particular branch which we represent.

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*Read before the Illinois State Dental Society, May, 1911.

The great interest in oral and dental hygiene is world wide, it is not confined to any community, state or nation. We find in some parts of Europe and Britain that they are in advance of us in making this a national issue. We Americans, who so frequently boast of our supremacy and prestige in affairs dental, find ourselves behind in handling this great work in its broadest sense.

The time has come when we must do something more than discuss the question among ourselves. Like the tailors of Tooley street, we have been satisfied to consider ourselves the people; and have not been doing things to make others agree with us. At the present time the question of oral hygiene is of national interest, before it can be effective it must be a national issue, before it can become a national issue it must be demonstrated that as a community issue it has proved its value. To ascertain to what extent this question is a community issue, I have written to the Commissioner of Health of every city in this country and Canada of 35,000 and over, of which there are about 126. The communication was in the form of a number of questions, as follows:

To the Honorable Commissioner of Health, City of X———,

My Dear Sir:—The question of oral hygiene and the public health is receiving a great deal of attention throughout the whole civilized world. Prominent health officials in different parts of the United States claim that most of the diseases so prevalent among school children can be traced to diseased teeth and adjacent tissue. The Illinois State Dental Society is anxious to perfect an organization and start a campaign for state-wide oral cleanliness, and to this end will you kindly favor me by answering the following questions:

1. Are the children in the public and parochial schools of your city instructed in the care of the teeth and surrounding tissues?
2. Are the teeth of these children examined by a dentist?
3. Is the examiner appointed by the Board of Health?
4. Have you any free dental clinic in your city, where the teeth of the poor are cared for?
5. Have any of the dental societies in your vicinity suggested

any action relative to the care of the teeth of the school children and those unable to pay for dental services?

Thanking you in advance for any information you may be able to furnish, I remain yours sincerely,

Donald M. Gallie,
President Illinois State Dental Society.

I also wrote the president of every state dental society in the country the following:

Dr. Jones, Pres. State Dental Society.

My Dear Doctor:—The tidal wave of oral hygiene which is sweeping over the country has no doubt reached your state. Has your state society taken any official action in the form of state organization to carry on the oral hygiene propaganda in schools and communities; if so, in what form? An early reply will be greatly appreciated.

In asking the questions contained in the communication to the health commissioners, I desired to find out first if any consideration was given to the subject; next, to learn whether the examiner was one competent to do this work, or simply one of the general medical inspectors. Question 3 was given for the purpose of learning whether the health department realized the importance of this work and appreciated the fitness of the dentists as the ones to do the work, or whether the appointments were made by the Board of Education. I am pleased to say that in the majority of cases where dentists were appointed, it was upon recommendation of the Commissioner of Health, thus demonstrating that the commissioner realized that it is not the work for a physician.

Questions 4 and 5 are closely allied. I believed that wherever the dental society showed any activity in this direction there would be a response from the medical and civic authorities; the answers I received verify this belief.

The following answers were received. Out of the 126 cities in this country and Canada written to, sixty-five replied as follows:

Question No. 1, No 40, Yes 25.
Question No. 2, No 50, Yes 13.
Question No. 3, No 46, Yes 19.
Question No. 4, No 42, Yes 23.
Question No. 5, No 42, Yes 23.

It will be seen that a large percentage of the cities heard from are not yet alive to the importance of this great factor for general health. No. 2 shows that only about half of those having instruction of some kind have a dental examiner and instructor.

In gathering this information I have learned that there are a number of smaller cities, between 20,000 and 35,000, that are giving attention to the instruction and examination in the schools.

Among the cities most advanced in this work are the following: Cleveland, Rochester, Newark, Toledo, Worcester, Toronto, Vancouver, Seattle, Spokane, Des Moines, Finlay, Philadelphia, Waterbury, Paterson, Knoxville, New York, Buffalo, Kansas City, Boston, Columbus, Reading, Providence, Watertown, Port Chester, New Haven, Portland, (Oregon), Baltimore, San Francisco, Oakland and Chicago. Cleveland and Rochester lead all other cities in this work; they both have a very comprehensive plan, and organization, and the data they are gathering will be a great aid to others in starting this important work.

The following incident shows the impression this work has made in Rochester. Mr. William Hodge, the actor, while presenting "The Man from Home" in Rochester, announced that to show his appreciation of Rochester, his childhood home, he would like to present to the most worthy charity in this city his check for $1,000. Formal application was to be made by the different charities and their reasons given as to why they should receive the gift. The committee to decide was composed of the manager of the theatre, the mayor of Rochester, and Mr. Hodge himself. The merits of the different charities were ably presented, but after careful consideration the gift was awarded to the free dental clinic under the supervision of the Rochester Dental Society.

Dr. George L. Goler, health officer of Rochester, in writing to Mr. Hodge, among other good things said: "As a long time worker for children, and in an experience that varies from residenceship in babies' hospital to three years' residence in the largest reform school in the state, it is my earnest conviction that no work for real philanthropy will be productive of so much good as that work being done by the dentists for the preservation of teeth and cleanliness of the mouth."

An extract from another letter sent to Mr. Hodge reads thus: "You have made a generous offer to contribute one thousand dollars to that charity of Rochester which upon evidence appeals to you as most worthy. The Board of Education of the city of Rochester, the superintendents, supervisors and principals of the public schools believe that no philanthropic work in this city has a more convincing appeal than that which is being done by the Rochester Dental Society in caring for the teeth and mouths of our poor children." Many other letters of a similar character were received by the committee, and they unanimously awarded the one thousand dollars.

Most of you are familiar with the work being done in Boston. The splendid Forsyth memorial is now under way. This is to be a wonderful institution dedicated to the children of Boston. When completed it will provide every facility for thorough work. Over one hundred chairs, surgical rooms, public lecture hall and laboratories for the most thorough research work.

I have secured a few copies of the plans and specifications for this great memorial and they are here for you to examine.

So impressed was I with some of the letters received from health commissioners that I thought it well to read parts of a few.

Dr. J. I. Crumbine, secretary of State Board of Health, Topeka, Kansas, says: "I assure you that this department in so far as this matter would come thereunder, would be very glad indeed to co-operate with you. We fully realize the importance of this work. The State Dental Society would have more to say in this matter than the department of public health."

Dr. F. E. Froznick, Commissioner of Health, city of Buffalo, urgently recommends to the City Council the appointment of dental examiners under the supervision of the Buffalo Dental Society.

Dr. J. E. Crichton, Commissioner of Health, Seattle, writes: "After many years of health department work, I know of no one thing that is serving the welfare of the public more than this work we have inaugurated in this department."

George Thomas Palmer, Superintendent of Health, Springfield, Ill.: "Under present conditions we are unable to take up inspection. We hope to do so in April. If this is not done the Springfield Tuberculosis Association will broaden out into a Springfield Health Association and secure the co-operation of dentists, and hope to establish a dental dispensary for the destitute. I want to assure you that I am heartily with you in this work. If I can be of any assistance to you, command me."

Commissioner of Hygiene, St. Louis: "We are very anxious for the dentist to take up this work. Will furnish two outfits for them."

The Medical Inspector, St. Paul: "There is no free dental clinic in this city, although there is a crying need for the same. No action has been taken by local dental societies, although we had hoped and almost been promised that a clinic would be established. I wish you would write the president of the local dental society, and send him literature that would cause the society to get interested and do something along this line."

John Otto Kemp, school physician, San Antonio: "Will be glad to receive any information you can give us on this very important subject."

Many similar letters were received showing that the health departments are with us and in many cases only waiting for us to take the initiative.

In a number of cities, dental lecturers have been appointed at salaries ranging from five hundred to twelve hundred dollars per annum. About forty presidents of state societies were written to and I received twenty replies, a disappointing percentage. Busy health commissioners could take time and interest to pay heed to my request, but fifty per cent of the dental society presidents were no doubt too busy to take an interest in anything outside of their office. Is it any wonder that some state societies fail to accomplish much? Nearly all of those heard from have some kind of a committee for public educational work, but only a few have accomplished anything simply because the committee has done nothing.

The states most active in this work are the following:

Among the first replies received was from Oklahoma, our young sister, and it was gratifying to learn that young as they are they realize the importance of oral hygiene and are actively engaged in a state-wide campaign. Their committee has succeeded in having adopted a chapter on "Care of the Mouth and Teeth," in a state text-book for schools and have under successful operation a free dental clinic in Oklahoma City.

Rhode Island, while not making a state-wide effort, has succeeded in having inspectors and lecturers appointed in the schools of a number of her cities.

Maryland has an active committee and expects good results during the next year. Massachusetts has an oral hygiene council made up of delegates from several societies in the state. They report splendid results.

Virginia has an oral hygiene committee working in harmony with the state and city superintendents of schools; also with different boards of health.

The Richmond Board of Health gave over to the dental committee their bulletin for February.

Ohio is in the front ranks. The society last year appropriated five hundred dollars to the oral hygiene committee; the same amount this year, besides giving one hundred dollars to the oral hygiene committee of the National Dental Association.

Tennessee committee of state society has succeeded in having a chapter entitled "Care of the Teeth" adopted by the state text-book commission, and are also working with the legislature to have dental examiners appointed to all schools throughout the state.

Maine has only started in the work, but has great hopes of reaching every part of the state.

New Jersey is carrying on a splendid campaign, perhaps the best of any. Nearly every large town and city has its examiners and clinics.

The legislature has recently passed the following bill:

Whenever any dental association regularly incorporated under the laws of this state shall maintain and conduct in any city of this state a dental clinic or clinics where indigent persons, residents of such city may receive treatment and relief without charge or fee therefore, it shall be lawful for the board or body having control of the finances of such city to appropriate and pay such association each year such sum or sums not exceeding in all the sum of five thousand dollars, as it shall deem advisable, to be used and applied by such associations only for the support, maintenance and equipment in such city of a dental clinic or clinics for the free treatment of indigent persons, residents of such city, and for no other purpose whatever. This act shall take effect immediately.

Nebraska is also entitled to honorable mention; their committee has the hearty support of the superintendent of schools of the state, who in an article in the official school journal, *The Nebraska School Review,* commends the work of the educational committee and promises them the co-operation of the whole teaching force of the state. The chairman of their committee is lecturing in all the normal schools and before all teachers' gatherings. The committee is also preparing a pamphlet to be sent to every teacher in the state. For the District of Columbia, Congress has recently passed a bill providing for the appointment of twelve medical inspectors, two of whom shall be dentists and four shall be of the colored race, at five hundred dollars each, six thousand dollars, provided that said inspectors shall be appointed by the commissioners only after a competitive examination and shall have at least five years' experience in the practice of medicine or dentistry in the District of Columbia.

It seems to me that this is a very important bit of legislation, for it places the stamp of approval on our work by Congress, and which I believe will have some bearing on state legislation.

New York state has made a wonderful advance during the past year. A number of cities throughout the state have inaugurated school inspection and free clinics. Only recently they have received official state recognition, by having two very able men, Doctors White and Wheeler, appointed members of the State Board of Health, whose duty it will be to act as consultants in all matters pertaining to mouth hygiene, and when requested to deliver lectures for health departments, educational authorities and other official organizations upon the subject of oral hygiene.

In New York city they have received recognition from the hospital authorities of the city. All city hospitals have a dental staff, the same as the medical staff, there being a dental interne who lives at the hospital, assisting visiting dentists, all under the direction of Dr. Wheeler, who has the title of director of the dental service. These appointments come through the board of trustees. They also have obtained the co-operation of the school authorities, who have set aside twelve schools containing over 30,000 pupils, where the dentists are to make examinations of the mouth, make records which are to be submitted to the educational board, who will adopt such measures as are recommended by the examiners. The Board of Health has also requested the appointment of an advisory committee of three dentists and all questions coming up before the Board of Health pertaining to mouth hygiene is referred to this advisory committee who are considered experts. This, you see, puts the profession in New York in the position of working in co-operation with the State Board of Health, New York City Board of Health, the Board of Education of New York City, and all hospitals controlled and run by the city.

Louisiana has what is known as the state health car, containing a complete exhibit, and under the direction of medical and dental lecturers. This car is to cover every mile of track in the state. There are no doubt other states active in this work. I regret that I was not successful in getting information from all.

And now we come to our Illinois. She has not been lagging, in this work, ever to the front in state society progress. She is not satisfied to rest on her record but continues with a vigor unsurpassed by any. Foremost among the many good things accomplished during the past year is the appointment of resident dentists to the state penal and charitable institutions, and it is our good fortune to have with us at this meeting a state official who was largely responsible in bringing about this recognition, and who will favor us with a paper on the subject. The profession has won a signal victory in having within the past sixty days a dentist made a member of the Board of Health of the city of Chicago, whose official title will be supervising dentist to the Chicago public schools. This is a civil service appointment, and it is gratifying to announce that one of our members, Dr. F. F. Molt, has received the appointment.

Two school clinics are in successful operation at present, and some others are soon to be started. The open air clinic is well organized with a corps of eight dentists under the supervision of Dr. Burkhart.

Through the efforts of Dr. Lester Bryant, two complete outfits are now being installed in the juvenile court in Chicago. Excellent service has been rendered in every department. The greatest praise is due our infant committee, the public press; the work of this committee is so far reaching that no can foresee the great benefits that will be derived therefrom. The committee on public dental education has accomplished a great deal during the past year.

The little booklet entitled "Care of the Teeth," has met with great favor, not only in our own state, but in many adjoining ones. Over twelve thousand have been distributed. This committee has well under way an organized corps of lecturers who will soon be in shape to lecture before gatherings of the profession or laity. However, while this committee and the gentlemen selected for lecture work are most enthusiastic and willing to undertake this great task, they expect the heartiest support from every component body. Every component society should select some of its members qualified for this lecture work. It is too much to ask a few already overworked men to travel once or twice a month to remote points to lecture, sometimes before meager audiences resulting from improper management. Since we have entered into this educational work no backward step can now be taken. We must press onward and not let it be said that the work was too great for the dental profession to handle.

To accomplish the greatest good to the greatest number, I believe we should have state recognition and state sanction, and to this end I would suggest that our legislative committee take such action as will lead to the appointment of a dentist on the State Board of Health. If this were accomplished it would do much toward similar appointments in city boards of health. I would further recommend that the committee on co-operation with Illinois State Medical Society make some move toward fostering closer relations between the two state societies,—in fact the time is ripe for a better understanding between the medical profession and the dental. We need their co-operation and they need us. Dentists should attend many of the medical meetings held throughout the state. Papers on oral conditions should be presented. We would be benefited if we more frequently had papers at our different dental meetings by medical men, those specializing in nose and throat work, or in fact any work that is associated with oral conditions.

Our profession should be better represented in the American Medical Association. The section on stomatology should be one of the live sections in that great body. The medical profession as a whole are in favor of us managing this important branch of the public health, but we need not expect them to lug us into it.

Another important step towards the successful carrying on of this propaganda would be the approval of the educational department of the state; by such approval we would have a standing with school boards, superintendents and teachers. Illinois, like many other states, has nothing to offer the school children on dental hygiene or oral conditions written by a dentist. Is it not time that such a condition should be remedied. Would it not be well for a committee from this society to confer with the educational department, submitting a booklet on oral and dental hygiene, and to have through the department this booklet circulated throughout the whole state, or even better would be the acceptance of a chapter on dental and oral hygiene for the text-books in general use.

I have here two little booklets, one prepared by the educational committee of the Ontario Dental Society and the other by the Canadian Oral Prophylactic Association. In presenting these it is not with the idea that they contain anything superior in our own little booklet, but to show the advance they have made in obtaining recognition and support from the Provincial authorities.

The one entitled "Care of the Teeth," and prepared by the Canadian Prophylactic Association, is approved and recommended by the minister of education of Ontario, and is printed by the educational department at Toronto; the other, "The Teeth and Their Care," "Dental Hygiene and Its Relation to Health," is prepared by the Ontario Dental Association and distributed by the Ontario Department of Agriculture, Woman's Institute branch. About forty thousand copies of each were distributed during the year. The two dental bodies responsible for these excellent pamphlets do not stop with advising how to care for the teeth; they go farther, providing means of carrying to advice into effect. They have a five-year contract with one of the largest pharmaceutical chemists in Canada to furnish tooth paste and powder at a price that all can avail themselves of.

Finding that a great bulk of the tooth brushes on the market were totally unfit for use, the association has designed and supervises the manufacture of tooth brushes suitable for all surfaces of the teeth and all ages of children. To show the earnestness in which the work is there carried on I will quote a little from the address of Dr. Andrew McDonough of Toronto, president of the Oral Prophylactic Association:

"In order to save the school children from having to use a brush totally unfit for their use and also to teach them the proper kind of a brush to use, we paid one-half the loss on thousands of tooth brushes so that they might be sold to the children at five cents a piece, the manufacturer's agent paying the other half of the loss."

Now, while I do not believe we are yet ready to go as far as our Canadian brothers, I do believe, as the largest dental organization in the world, on the threshold of a great campaign, that we should at least make recommendations to the manufacturers of brushes to the end that suitable and reasonable ones could be obtained.

If we do not supervise this work, who will? Who is more competent? Who knows the needs of the public as we do? And I do feel that every reputable manufacturer would welcome suggestions from such a dental body as this.

The committee in public dental education would do well to get in touch with the Federation of Women's Clubs. Every women's club of any importance in the state is a member of the federation, and we all agree that these organizations are doing a splendid work, and I know of no better medium of bringing this question before the intelligent women of the state than through the agency of these clubs.

It is the mothers of today and mothers of tomorrow that we must look to as allies in this campaign. And now with this tremendous work before us, how shall we handle it? First, it requires the interest and counsel of brainy men, who have the faculty of organization and constructive force, and who are capable of getting the very best out of men, those now engaged in the work are men of this type, but we need many more.

It will require the time and energy of a large percentage of this society's membership. Brains, energy and enthusiasm will do a great deal, but something else is very essential, namely, money. Little can be accomplished without it. The dues of this society are hardly sufficient to carry on the regular work that the society is now engaged in and as our sphere of usefulness enlarges, so also will our expenses. To carry on this educational work as we should is going to take some financing, and many of our members who are in close touch with the great amount of work this soceity is doing believe that the dues should be increased. However, if raising the dues should be the cause of keeping anyone out, or of forcing anyone now a member out of the society, then I would not be in favor of an increase.

It has also been suggested by some of our active men who have given this question careful thought, that it might be well to ask voluntary contributions to a special fund for this additional work. There may be other means of meeting the expenses and this question, like all the others considered in this paper, I leave to the wisdom of the society.

PORCELAIN CORNERS.*

BY DR. WESLEY A. CHAMBERLAIN, ST. LOUIS, MO.

No doubt much of the disfavor into which porcelain inlays have fallen is a result of too much enthusiasm on the part of the profession before sufficient experience or knowledge of the requirements were obtained. Enthusiasm might cause a dentist to recommend the removal of a perfect gold filling from the mouth of a friend in order to substitute an inlay which in time through improper cavity preparation or fusing resulted in failure. One such experience would be discouraging and several would be sickening. It was the enthusiasm of a few of the skillful ones which infected the others. Lack of experience means particularly the lack of proper cavity preparation which has meant not only the failure of porcelain fillings but every other kind as well. The principal cause of failure here has been the lack of cutting for fear of destroying sound tooth structure. Gold fillings preceded the use of porcelain and habits of cavity preparation were hard to change. This accounts for many failures and discouragements in the infancy of porcelain work. These cavity habits so well established had to be changed or abandoned for success in porcelain art. This important consideration was admitted and practiced by the skillful and patient few, hence the successful workers in porcelain are not counted in great numbers.

Porcelain inlays have been used in all cavities by some operators and perhaps with a certain class of patients such practice might be successful but to my mind and generally speaking cavities in incisors and cuspids excepting those of the lingual pits of such teeth are the ones where porcelain in indicated. And of these cavities those restoring the incisal corners are the most difficult. Here the forces of mastication must be seriously considered, first because of their tendency to dislodge the inlay and second because of the fact that the lack of flow and resistance to porcelain requires the inlay to be of such shape that the tooth structure will receive the larger part of it.

Dr. Black proves that the human jaw is capable of exerting a pressure of from 150 to 300 pounds, while from 30 to 80 pounds is sufficient for eating. He also shows that the teeth can stand a percussion force of from 15 to 25 pounds. For comparison I will give the result of tests of the strength of porcelain first by Dr. Jenkins who finds after scientific laboratory tests that a piece of porcelain one centimeter square by 2.3 millimeters deep can stand a steady pressure of one-quarter of a ton for one kind of porcelain to one ton for another kind. Such results would indicate pure compression under ideal conditions. However, the dangerous forces are those of percussion and shear. From tests made with instruments or specially constructed machines, bars of porcelain 3/40 by 5/40 of an inch show a percussion resistance of 26 pounds for several of the standard makes. Similar bars hit by a two ounce plunger through a distance of ¼ inch broke at six and eight ounces.

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*Read before the St. Louis Dental Society on February 7, 1911.

The conclusion to draw from these experiments is that the inlay should be so constructed as to be protected from these dangerous forces which in a measure are accidental ones, by so shaping them that the forces are received by the tooth structure or by a glancing or rounding surface of the filling. The principle that porcelain to have strength must have bulk also applies to inlays.

In regard to the tendency of the force of mastication to dislodge an incisal corner in one of the upper six anterior teeth the cavity should be so shaped that these forces will drive the inlay against the tooth structure rather than away from it. In biting, the first force is on the incisal edge so that a good square and deep seat sloping axially is needed. The next force is that of the incisal edges of the lower teeth sliding over the lingual surface of the uppers in a gingival direction. To resist this force much of the lingual enamel wall should be removed and the cavity deepened at the labio-gingival angle preserving as much tooth structure as possible. The seat should also extend well around on the lingual permitting of a large mass of porcelain at this point.

Another force tends to dislodge the inlay in a mesial or distal direction as the case may be. This is guarded against by grooving. In other words, it requires a step cavity from lingual to labial with a groove in the linguo-pulpal wall at the junction with the lingual enamel wall, also in the labial wall, especially near the labio-gingival angle and in the gingival seat.

Equally important to cavity form is the cementation of the inlay. First the adaptation of porcelain to tooth at the margins must be close to prevent washing and disintegrating of cement, and second, the greatest binding power of the cement must be obtained.

The margins of all cavities should be square and well polished. Usually not enough care is exercised in smoothing and polishing the margins which, if formed in the usual way of planing with a chisel will leave, when the inlay is inserted, a line of cement which varies in width. This I attribute to the impossibility of burnishing the matrix evenly into the minute depressions of an unpolished margin. However, if it is accomplished it is done by thinning the matrix on the high points and thickening it on the low points. This in itself would preclude a perfect adaptation when the matrix is removed but in addition to this the inlay is smaller than the cavity by the thickness of the matrix which brings the corresponding uneven point of the margin and inlay out of relation. This applies largely to the margin because the cavity surface with that exception is etched with hydrofluoric acid or ground away with small carborundum stones to a sufficient extent to separate the surfaces of inlay and cavity. This serves a double purpose of allowing only the margins to come in direct contact and also to give some body to the cement.

The conclusion from a very elaborate series of experiments by Dr. Head is that the binding property of cement under an inlay depends upon its bulk and that it adheres better to porcelain etched with hydrofluoric acid than when ground and also that if possible, undercuts should exist in porcelain and tooth cavity.

Further, that the grit of the cement should be very fine to admit of a close adaptation at the margins and that it is not necessary to maintain pressure more than one minute. The reason that a surface treated with hydrofluoric acid is more favorable for adhesion of cement is, because, on account of the difference in the ingredients of porcelain which are more or less affected by the acid, a much more uneven surface results than when treated in any other way. In addition, it is well to groove the inlay with small knife edge stones designed for this purpose.

The cementing of an inlay is very important. Great care should be exercised and ideal manipulation employed, such as bringing powder and liquid together in small amounts and thoroughly spatulating. Inasmuch as cement is composed of liquid and solid it is reasonable to suppose that up to a certain point the best mix is made by incorporating as much powder in the liquid as is possible, still leaving it fluid enough for the excess to flow ahead of the advancing inlay and permit of perfect adaptation of tooth and filling. Too little powder is dangerous, so it behooves one to have everything ready before the mix is started. The cavity should be dried with chloroform. No hot air, the theory being that if the tooth is dehydrated too much, it absorbes the liquid portion of cement much as a dry plaster model does when new plaster is applied leaving the remaining mass very much deficient.

Care should be taken to keep tooth and inlay dry after being cemented, and to polish the margins the following sitting with fine arkansas stones.

It is well to inform the patient that if the inlay is imperceptible at conversational distance it is a success. The fusing and obtaining color effects come with a little practice with the present improved furnace and heat measuring devices.

The kind of porcelain to my mind is important as it seems to be the present concensus of opinion of those who have used both that the high fusing is the most satisfactory in every respect. From personal experience there is little chance of error with the high fusing and without doubt a beginner will get better results with it. A little over fuse or under fuse does not seem to make the great difference that such a condition does with the low fusing porcelain. In fact, the low fusing seems to be utterly ruined by a little too much heat or too little and another difficulty with this kind of porcelain is the unreliability of it baking up to color, due, it is explained, to the pigment being affected by age.

Dr. Capon in an article entitled "Porcelain After Eighteen Years," cites many cases of large contour inlays, including the incisal angle which have done service for from fifteen to eighteen years. He further says that this is the best argument that porcelain, if used with care and discretion, cannot be supplanted by any substitute.

My personal experience with porcelain inlays dates back ten years. At that time the entire dental profession was more or less interested and enthusiastic over the subject. I, with everyone else, was ambitious to succeed and plunged in with the rest to find the task most difficult and discouraging. But today, after these ten years of conscientious endeavor I unhesitatingly recommend it wherever

I think it indicated. Recently my confidence has still further increased by two experiences in an effort to remove porcelain inlays in the anterior teeth including the incisal corner because of color. I began the operation with a driver and mallet until it seemed the whole tooth might be dislodged in a fruitless effort to remove the inlay. Finally I resorted to grinding with assorted sized stones and diamond drill—the impression of the permanence of a porcelain inlay was as great with the patient as with me after the completion of the operation.

There are many more forms of cavity preparation recommended for cavities in the incisors including the angle besides the one I have recommended which are much more difficult, and consequently discouraging to the beginner. But I believe that in all cases, with the exception of the few extremely difficult ones where ordinarily a crown would be advised, unless the operator was a most skillful worker this form of cavity preparation is the easiest and at the same time the strongest. This conclusion is the result of experiment in many, if not all directions, even trying to put a porcelain inlay into a cavity shaped along the lines for a gold filling.

Possibly were it not for the porcelain inlay very little individual work would be done in porcelain, for with the large selection of manufactured porcelain crowns and teeth, a dentist can ordinarily meet any requirements. However, those who have the furnace and work in porcelain find many and varied uses for it which aid in bringing about ideal results.

The purpose of this paper has been more to convert the unbeliever and to bring back into the fold the backslider than to present new ideas to those who are already successful advocates and disciples.

THE HYGIENE OF SEX AND OUR DUTY AS PROFESSIONAL MEN IN RELATION THERETO.*

BY WALTER H. FUCHS, M. D., ST. LOUIS, MO.

The reason for accepting the invitation of your worthy president to present a paper on this occasion, and my excuse for encroaching upon your valuable time, is an earnest desire to enlist your active support in your personal contact and in your professional capacity with your patients and acquaintances, for the organized movement for sex and social hygiene as represented by the St. Louis Society of Social Hygiene. As professional men we occupy an authoritative position and we have a right to expect respectful attention in all matters pertaining to public and individual health. But we must be sure that our own professional methods and personal habits entitle us to that distinction. What I shall have to say to you as Doctors of Dentistry is said with a full realization that it is equally, if not more, applicable to Doctors of Medicine.

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*Delivered before the St. Louis Dental Society February 7th, 1911.

Let us be absolutely sure that not a single case of gonorrhoeal or syphilitic infection is the result of imperfect habits of cleanliness or imperfect methods of sterilization of instruments or other portions of our operative armamentarium. How many doctors of medicine or of dentistry, too, have an adequate sterilizing outfit in their respective offices? Without a sufficient equipment the temptation is all too strong and the practice all too common to merely wash or scrub instruments, which is not at all sufficient to prevent the transmissions of infections.

When a suspicious lesion of the mouth or face presents itself it is our plain duty to determine absolutely whether or not it is of luetic origin, especially since this can be determined with almost absolute certainty with the Wasserman reaction, and more especially since the curability of lues with the Ehrlich—Hata Arseno-Benzol, is, day by day, becoming a more definitely established certainty. The future general health and more especially the stability and integrity of the nervous system of our patient is dependent upon a correct solution of the diagnosis and thorough treatment. Doctors and dentists should work in conjunction in these matters.

If there is one individual for whom I have greater contempt than for another, it is the man who will attempt to besmirch the reputation of a fellow, on the presumption, usually self-assumed, of professional superiority. But I am equally certain that we professional men ought to stand shoulder to shoulder against, and no longer maintain an indifferent silence towards the various forms of quackery and charlatanism rampant in our country. The press is teeming with all kinds of extravagant advertisements misleading the unknowing public and villifying the reputable profession; our patients are being alienated from us by Christian Scientists, those criminals masquerading under the cloak of religion, the faith healers, osteopaths and other fakirs, and we stand idly by without an effectual or vigorous protest, convicted by the unthinking or ignorant laity of absolute impotency or of acknowledging the truth of these vicious claims.

We can exercise the greatest power for good among our patients and acquaintances by frequently stepping out of the role of professional adviser and, from the standpoint of personal interestedness, impart such knowledge and give such advice as will appeal to common sense and in that way prevent many disastrous mistakes. Most persons are responsive to expressions of personal interest, to efforts made in this spirit, and gratefully acknowledge the deed, especially when it comes from men who occupy or, at least, ought to occupy, an authoritative position. Let us be sure, however, that, in our own conduct we are not in the position of those "who live in glass houses and must, therefore, not cast stones." Probably most of you are familiar with what I shall have to say, and my remarks are intended more as a guide in whatever active part you may elect to take in the movement for social hygiene.

Before entering upon a consideration of the subject before us, I want to avail myself of this opportunity to explain several points relative to which my position might be subject to misinterpretation. In the first place, I am identifying myself with this work, not because I have any lack of faith in young men or young women, nor because I believe they are willfully or criminally careless. On the contrary, I have absolute confidence in their good intentions and believe that they will respond promptly and willingly to suggestions that are made in a sane and temperate manner.

When, in the course of my remarks, I say men in most instances, I mean men and women, for I am fully aware that not all the unchastity or immorality is confined to men, although the condoning attitude and leniency with which social laws treat infractions committed by men, and the utter condemnation and uncompromising attitude of the same social body towards women guilty of the same infractions, has resulted in an infinitely greater percentage of immorality among men as compared with the opposite sex. These social laws are absolutely unjust and must be wiped off of the social statute books in so far as they apply to men. But the fact that they do exist must be accepted as a plea in extenuation of men's conduct.

Long before the educational movement, relating to the hygiene of sex, became crystallized by the formation of the International Society of Moral and Social Prophylaxis in 1902, by the Brussels Congress, there had been a growing sentiment and conviction among intelligent, progressive medical men who had a proper appreciation of their moral responsibility as doctors, and among sociologists who were undeterred by putrid sentimentality and actuated solely by a desire to improve the moral as well as physical condition of all members of human society, that something definite had to be done, and done quickly, to bring men and women to a proper realization of the dangers to the present and future generations arising from the very general and widespread ignorance of the proper hygiene of sex and the venereal diseases resulting from immoral and impure sexual relationship. Before that date, however, sporadic and spasmodic efforts had been made to correct existing conditions. Even as early as 1872 our own legislature passed the so-called "Social Evil Law," which provided for systematic medical examination of prostitutes and the issuance to them of "Bills of Health," by properly qualified and competent physicians, but which died in its infancy, aged one year, from a lethal dose of sentimentality and "Hysteria Americana." The very manner in which the petition praying for its repeal was presented, "carted to the speaker's desk in a wheel barrow decorated with white ribbons and accompanied by a group of young girls dressed in spotless white" was indicative of hysteria.

If we are justified in accepting the testimony of the doctors and druggists, the men, above all others, best qualified to pass upon its merits as a measure of prophylaxis in venereal diseases, its enactment reduced the number of cases from 50 to 75 per cent. Let us hope that none of "the young girls dressed in spotless white" became the innocent victims of its repeal.

Since the 1902 Congress in Brussels societies with a similar aim and scope have been organized in Germany, France, Holland and other European countries, and the first American society was formed in New York City in February, 1905. Other cities have taken up the work, notably Chicago, Philadelphia, Baltimore, San Francisco, Los Angeles and Spokane. The St. Louis society was organized January 29, 1909.

Whilst these facts are in themselves encouraging it seems to me we are not emerging fast enough from the haze of uncertainty as to the proper method and scope of the campaign, and the feeling of diffidence too generally prevailing among ultra-conservative men, whose assistance would be invaluable but who are controlled on the one hand by a fear that too general a dissemination of knowledge regarding the hygiene of sex might be misconstrued, by our youth and their parents, as instruction to safeguard them in leading unchaste lives and, on the other hand, by a measure of doubt that the statistics offered by close observers are overdrawn and that the social disease is not so great and the remedy, therefore, not so imperative. With all due regard for the opinion of this latter group, I wish to suggest that their contact with the classes most in need of instruction is too circumscribed and slight to enable them to see the situation in its true light—or rather darkness.

It may be just as well, at this point, to repeat the objects of the International Society as stated when it was formed, and the methods proposed for the attainment of these objects, in as much as I heartily subscribe to them and shall endeavor to make them the basis of my conclusions when possible. The objects are: 1. The prevention of the large number of infections which occur in the young, the immature and the irresponsible through ignorance. 2. The Preservation from infection of innocent wives and children who are powerless to protect themselves. 3. The prevention of a vast mass of disease and misery engendered in the descendants. The programme consists of: 1. The general dissemination of knowledge among the public, in a proper and discreet manner, of the extent and danger of these diseases and their modes of contagion, direct and indirect. 2. The education of the public respecting the social dangers of these diseases, especially to the innocent members of society, through their introduction into marriage; and, 3. The education of young men and women in a knowledge of their physical selves and of the laws and hygiene of sex. The comprehensiveness of the above programme justifies the remark, at this juncture, that it will be impossible, in a paper of this kind, to emphasize in detail all points of so large a subject.

The first question which naturally suggests itself is the education of the public at large, but especially the young men and women, in the physiology and hygiene of sex. The task is an onerous one but it must be assumed boldly and fearlessly. For the sake of convenience the sex problem might be divided into three general heads: 1. The boy problem, that is, including the ages from 10 to 15 years. 2. The young man's problem, including the ages from 15 to 25 years; and 3. The man's problem, including the ages after 25, or, more broadly speaking, the period after marriage. Roughly speaking, the boy problem is protection against himself; the young man's problem is protection against himself, plus protection against outside influences; and the man's problem includes the two other plus protection for his wife and children.

We are deprived, in this generation, of one of the most valuable aids during the early life of the child by the fact that the parents, their natural teachers and guardians, are themselves, generally speaking, not only absolutely ignorant of the entire subject matter, excepting as to a few points gained in the bitter school of experience, but resolutely refuse to fulfill their parental duties in many instances.

We are continually boasting of the superiority of our public school system, and that boast, generally speaking, rests upon the solid foundation of fact. But on this subject of sex hygiene our public school authorities are almost criminally negligent, although, in their defense be it said, they are usually responsive to the demands of an enlightened public opinion.

In the Continental countries all important matters relating to sex physiology and hygiene have been taken up vigorously in the schools and universities. There is no longer any excuse for any youth leaving one of these institutions without a solid working foundation for keeping morally and physically clean, thanks to the efforts of such authorities as Curschmann, Forel, Mendel, Hoerschelmann, Blessing, Masing, Assmuth, Mayer and Herzen, who have given the necessary data to their respective governments.

Recently an order has been issued by the Prussian Minister of Education to the directors of all universities requiring them to warn students against the dangers of venereal diseases. This order will apply also to the lower schools. In France, also, the whole subject is being taught the youths, while an excellent pamphlet of instruction has been put in circulation for all contemplating marriage to read and heed. In all foreign countries these subjects are being elucidated by experts in an ethical and medical manner, and the greatest emphasis is being placed upon the value of sexual continence in the young, that one of nature's greatest truths which must be the most important factor in the preservation of the health and morals of the coming generation.

In the Mannheim Conference of Sex Pedagogy in 1905 it was unanimously resolved that sex hygiene shall be taught in the secondary schools. In Finland, Switzerland and even in Hungary such instruction has been authorized by law; in fact, it is now given almost universally throughout the European schools with results far exceeding the most sanguine expectations.

It is my firm conviction that this country is rapidly emancipating itself from European ideas and customs. We have problems, conditions and ideas peculiarly our own and which are the product coming out of what might be comprehensively termed "the great melting pot." But what is considered absolutely necessary for the youths of Germany and other European countries is far more so for our youths, owing to the lack of proper home instruction and the almost criminal mixing of sexes in our schools. But reluctant as we might be to admit it, we are a generation behind our European cousins in this one subject. There are no definite provisions made in our schools and universities for giving systematic instruction in this most vital matter. A notable exception is the series of lectures given by Dr. Willson, of the University of Pennsylvania, and the lectures given by Dr. Jordan, of Leland Stanford University, besides sporadic lectures on sexual hygiene and venereal diseases given at other institutions. They are generally lacking in plain speaking, however. But it is not sufficient to reach the pupils of the high schools and colleges, we must teach the children of the masses, the grammar school pupils, boys and girls who must be reached before the harm of tampering with matters of which they are ignorant affects them. For everyone at all conversant with the facts knows that young pupils often enter universities with venereal diseases to which they would not have exposed themselves had they received adequate instruction before adolescent awakening.

The child should receive instruction from the earliest period when it is psychologically ready to grasp it. It stands to reason that sex education should be progressive with the age of the individual and that there should be definite co-ordination between parents, doctors, ministers and teachers, and resolves itself into: 1. Finding the right information; and 2. Imparting it aright. It is the parent's duty to teach the child the process of the fertilization of plants and flowers and, by a gradual process, lead him through the vegetable kingdom up to the reproduction of animal life, from the lowest forms to the highest, finally arriving at the human species. For my part, I thoroughly agree with the writer who says: "I see nothing indelicate in the mother telling her child that he has grown from a seed implanted in her body, that this seed was nourished from her life blood until it grew into a child and was then brought into the world at the cost of much pain and suffering to herself," and further, "the child's new conception of his relation to his mother, as truly a part of her being, cannot fail to deepen and strengthen his natural feeling of love and affection for the one who has brought him into the world, as well as uplift his ideas of the sacred meaning of human generation." Contrast, if you will, the picture thus presented with the boy loafing around the neighborhood drug store, stable, or in the servant's quarters getting vicious information from equally vicious sources. For, get the information he will. It is not a question of to know or not to know, the question is whether it is better to know things right or to know them wrong, and whether or not the instruction will be imparted by one actuated by feelings of personal interestedness and love.

I cannot dismiss this phase of the subject without emphasizing the parent's duty to develop high ideals of character in the child. Character will be the final test in determining the man's social ideas and ideals, and it is unfortunately true that this part of a child's development is often sacrificed to the social ambitions of the parents and the strenuous demands made upon them in attaining and maintaining them. The deficiency is becoming more and more recognized daily, and with it the right of every child, and the economic interest of the state in it, to make its life as perfect as possible, morally and physically, and as valuable as modern science and education will permit. This is evidenced by compulsory education, compulsory vaccination and the painstaking inquiry by boards of public schools into possible physical defects which might be remedied and which act as a deterrent factor in the child's intellectual development.

Where the natural parent neglects or refuses to grant these advantages to a child the state will create, or act as, the artificial parent so as to guarantee them.

It is somewhat difficult to draw a sharp line of demarkation between the duties of the teacher, the doctor and the minster. Generally speaking, the schools should incorporate in the curricula a graded, systematic course of instruction in biology and a thorough course in the anatomy and physiology of the human generative organs. The doctors should instruct young men and young women, and for that matter older men and women, in the proper hygiene of sex and the evils and dangers arising from a violation of the laws governing the physiological processes. To the minister we must look for the proper moulding of character and the development of the highest ideals of citizenship. In a sense, he is complementary to the parents and must take up the work where the parents have left off. It often happens that a stranger has more influence than the parent, and often, alas, is the minister called upon to work with totally raw material.

In the very limited experience I have had in speaking on this subject a number of points have suggested themselves to me as worthy of note in carrying on the physician's part of the work. Owing to the present, very general, ignorance of the laity on the subject it is as necessary to instruct parents as to instruct their children. In fact, I would suggest that public and private lectures be given to the fathers, the mothers, to the fathers and sons and to the mothers and their daughters. By bringing parent and child together a certain, very noticeable, feeling of reticence or diffidence is removed and what was before a subject studiously avoided becomes one of mutual interest and an exchange of confidences results.

It goes without saying that the lecturer must be discreet as to the subject matter and as to the manner of its presentation. His standing must carry with it the weight of authority, he must measure the mental and psychological capacity of his audience and employ language that will be understood and yet does not become vulgar in its plainness. He must insist that morbid curiosity has no place in the lecture room, and should be scrupulously careful that his object in lecturing be not misconstrued as an effort to show how sexual incontinence may be practiced without danger.

The subject should be presented in as graphic a manner as possible. In the absence, hitherto, of a comprehensive course in anatomy and physiology in the high schools and colleges he must supply the deficiency. He should employ anatomical charts, wax and papier mache figures and manikins, lantern slides, anatomical and pathological specimens showing the organs in health and the destructive influences of venereal diseases, and should support his own statements with a limited number of reliable statistics gathered from trustworthy sources. With these at his disposal the lecturer can show, in a very positive way, how the disease process travels in both male and female, what structures are involved and destroyed and how sterility may be produced and the life of the individual threatened.

It is absolutely essential, in my estimation, to emphasize the physiology of the several organs. No other one factor is so productive of harm as the very general impression among the uninformed that a periodical exercise of the sexual function is essential to the preservation of health. A very positive distinction should be drawn between secretions of the body, such as urine and faeces, which are the body waste materials containing the dead substances, impurities and poisons and which must be regularly carried off through their natural channels lest they poison and kill the individual, and secretions, such as saliva and semen, which are the normal products of a healthy organism, essential to the performance of some health function, and which need not be carried out of the body to insure good health and life, but which, on the contrary, are living cells in a vital fluid which is capable of being reabsorbed and of supplying energy to other tissues of the body, especially to the muscles and nerves. It should be emphasized in this connection that the occasional nocturnal seminal emissions are not "losses" but a passing away of normal secretions, whose frequency depends upon the physical constitution of the individual and upon the moral atmosphere which he creates for himself by his social and intellectual contact. It is easy to convince boys and young men that these accidents are indications of a waning power of reproduction, and untold thousands of dollars are paid to the quacks each year, for what?—to cure Nature. What is far worse, the boy is told that sexual intercourse is demanded and he is steered into the clutches of the prostitute to be infected with venereal diseases.

The question of self abuse, masturbation, must be touched upon but only sufficiently to brand it as a nasty, unclean habit in which no one with a proper degree of self respect will indulge. It is the realization of this latter fact by the subjects, and not the physical injury, which causes so much distress and mental suffering, and, finally, physical impairment of health. It would be a dangerous and unpardonable statement to make that masturbation is not harmful, but it is also true that it is not as productive of harm as the quack literature would lead one to believe. These boys are subjects, not so much for physical treatment, as for moral correction and for an appeal to, and awakening of manly instincts.

One of the most difficult problems which confronts us in dealing with the young man is to convince him of the compatibility of sexual continence and health. He must be made to understand his obligations to himself, to his family, to the state and to posterity, and that a proper restraint is necessary to the fulfillment of these obligations. I have found it expedient to appeal to him by making a distinction in the bodily functions between the lower animals, savages and civilized man. For convenience, the functions of the body may be divided into three groups: 1. The function of nutrition, which is largely self-regulative and automatic and too essential to life to be left to the caprice of the will. 2. The function of reproduction, the impulse for which might emanate from the sexual organs themselves, or from the brain or central nervous system; and, 3. The function of ennervation, the product of the highest development of the central nervous system, and which is the distinguishing function between civilized man and savages or lower animals. In the control of the appetites of the body, that is, the impulse to over eat, over drink or over exercise, the intelligence, acting through the will, is the controlling agency and the chief motive to control in these particulars lies in the physical ill effects which follow these indiscretions. In the sex impulse a moral as well as a physical element is involved, and it, therefore, calls for the exercise of the highest psychical impulses.

Let us impress upon him the position he occupies in the social body. He is analagous to the cell in organic matter. The cell is the unit of which all organic matter is composed, and just as these units are healthy or diseased so will the whole organism be healthy or diseased. Each individual bears the same relationship to society or the social body. He is the unit of which the social body is composed, and just in so far as he insists upon being himself healthy, morally and physically, to that extent will he contribute to the general moral and physical health of society.

That absolute sexual continence is not only compatible with good health but positively conducive to the perfect preservation of the physical and intellectual faculties has been abundantly proved by the records of thousands of men and women who have lived useful lives under these conditions. The sexual instinct has been compared with the instinct of hunger and thirst. But this is not a proper comparison, since food and drink are vital necessities. It may be more properly compared with the appetitie for alcohol, tobacco and drugs, appetites which are the result of cultivation and grow by what they feed on.

Practical experience of every physician proves that continence never produced harmful effects. I have never been consulted for this cause. Fournier, probably the most eminent authority in the world, says: "Referring to the so-called dangers of continence, I do not know them, and I have never observed them."

Ignorance of the physiological laws of his nature; bad habits ignorantly or innocently acquired; a weakened resistance or non-development of the will power; the false idea that it is necessary to "sow wild oats;" the example of his companions and the false pride which creates a foolish ambition to be one of them; and, finally, the economic conditions which render early marriage difficult if not impractical are some of the reasons which conduce to a life of sexual incontinence. It is not sufficient to base your appeal to the young man upon a foundation of selfishness, upon the conclusion that it would not pay to take the risk; the moral question is inextricably interwoven and must be made paramount. Each individual must strive to create in his own mind the highest ideal of the sexual function; he must regard it is a law of sex and recognize its high purpose. The constant disciplining of the desires constitutes one of the most effectual means of strengthening manliness and upbuilding of character.

The question may be asked: "Is it not natural to use a prostitute?" And I answer, that it is considered natural only because social laws and customs, speaking generally, have not yet been so framed or enforced as to demand a different standard.

Let us emphasize to young men the ideals of a clean mind in a sound body, self respect, respect for women and that a sense of moral responsibility in sex relations should be the highest incentive to continent living.

Every man should consider it degrading to meet a prostitute, not to mention a more intimate contact. Most of them are degenerates, even criminals, in poor health, of poor physique, unable to work and unable to resist the ravages of disease and are, thus, the constant carriers of disease germs. They are generally of feeble intellect, uneducated and unfit for civilization, the rejects, association with whom ought to be beneath the self respect and dignity of every real man. I am not lacking in a proper degree of sympathy for these women, on the contrary, they appeal to me in their misery, and we ought to do everything in our power to support organized effort to raise these unfortunates from the moral abyss into which they have fallen. They have been created in the image of God and reluctant as men might be to admit it one of their own sex is usually responsible for their downfall.

Men pride themselves on being the stronger sex. It is a gift from God to be strong, but it is a divine blessing only if it is used with gentleness and in an effort to uplift the weak. Let them cultivate a higher regard for woman and they will merit a greater measure of her respect and confidence. They ought not to regard her, nor allow their fellow man to regard her, as a plaything, an object of caprice and as a legitimate victim of the baser animal instincts. Let them regard all of them with the reverence with which they think of their mothers; let them not forget that she may be some other man's sister, and let them resolve "To do unto other's sister as they would that others should do unto theirs."

If I had my choice and felt justified in resting my case upon idealistic lines I should add no further arguments in my appeal to young men. Unfortunately, however, you cannot reach all of them from this angle, and must appeal to their selfish and materialistic instincts. Perhaps we could reconcile ourselves with the thought that he who transgresses gets only what he has a right to expect, were it not a fact that innocent wives and unborn children are defenseless victims. There is abundant, reliable statistical evidence to show that 80 per cent of the deaths from inflammatory disease of women, 75 per cent of all special surgical operations performed on women, and 60 per cent of all the work done by specialists in diseases of women are the result of gonorrhoeal infection. In addition 30 per cent or more of gonorrhoeal women are rendered absolutely and irremediably sterile, and many are condemned to a life of invalidism.

Every year in this country thousands of pure young women are infected in the relation of marriage, their conceptional capacity destroyed, the aspirations which center in motherhood swept away, or the holy office of maternity desecrated by the bringing forth of tainted, diseased or dead children, children who are born with a mortgage on their brain and physically so impaired as to start them with a crushing handicap in the struggle for existence.

In defense of most men be it said that these results come only from ignorance of the possibilities lurking behind incontinent lives. They are not criminals and not criminally disregardful of the welfare of wife or children.

The three venereal diseases are chancroid, gonorrhoea and syphilis. In point of frequency these diseases vastly over shadow all other infectious diseases combined, fully one-eighth of all human disease and suffering coming from this one source. They attack the young man most frequently during the most active and productive period of life. The actual number of infections become more apparent when you stop to consider that every year in this country, according to a computation made several years ago, 770,000 males reach the age of maturity, that is, they approach the danger zone of their first debauch, and that, under existing conditions at least 70 per cent, or 540,000 of these young men will, some time during life, become infected with venereal disease. These 540,000 cases are the aggregate of one year only. Each succeeding group of males who pass the twentieth year furnishes its quota of victims, so that the aggregate number is immense. What wonder, then, that some men stand aghast at the immensity of the task before them. But its very immensity is the strongest evidence of its urgency.

Of the three diseases chancroid might be dismissed without further consideration were it not that it is locally very destructive unless properly cared for, and that it is easily transmitted to others and may, in fact, cause new suppurative foci in the victim himself.

Gonorrhoea, contrary to popular belief, is not as "harmless as a slight cold," nor is it necessarily a purely local disease. It is a disease primarily attacking the genital tract, chiefly the ducts which transmit the ovum in the woman or the fertilizing element, the sperm, in the male. By a continuity of structure and through the lymphatics it travels along the entire genital tract, often causing sterility in both sexes. It is far more serious in the woman, producing inflammatory changes in all the pelvic organs of such extent as frequently to necessitate formidable pelvic operations to relieve her of her untold suffering and state of chronic invalidism.

It is not always a local disease however, the infecting entity entering the cirulatory systems and producing grave and sometimes fatal inflammations at remote points, notably of the heart and joints. It is not transmissible to the offspring, although the eyes of the new-born child may become infected while in transit in the birth-canal of the mother, which may, and frequently does, cause total blindness. From 70 to 80 per cent of the ophthalmia which blots out the eyes of babies, and 15 to 25 per cent of all blindness is caused by gonorrhoeal infection.

In considering the subject of syphilis one must be satisfied with general statements. The subject is so vast and its bearing upon the ethics of marriage and social laws so intricate that it is impossible to touch upon all of its phases in detail. The advances in the past few years, by the discovery of the causative entity, the spirochetae pallida, the Wassermann and the Noguchi tests determining with reasonable certainty the correctness of the diagnosis and the curative efficiency of certain courses of treatment, and, finally, the promise of brilliant therapeutic results from the new "606" remedy, all tend to simplify the situation considerably. But these factors tend to increase the responsibilities resting upon the victim, since they tend to remove what were formerly elements of doubt and the excuse of ignorance.

Syphilis is always a constitutional disease but it is always preceded by the primary ulcer, the hard chancre. This is followed by the secondary stage, the stage of eruption and acute inflammatory reactions, and this, in turn, by the tertiary stage, the stage of the gumma or connective tissue deposits. It is absolutely no respector of tissues, attacking all internal organs, the organs of special sense, the muscles, bones and joints, but it seems to have a special tendency to attack the blood vessels and the central nervous system. It is transmissible from husband to wife and is the only infectious disease directly transmissible to the child before birth. In this latter effect it is simply murderous. From 60 to 80 per cent of children with inherited syphilis are still-born, and four out of five born living die within a very short time. Those who finally survive retain grave physical and organic defects which may, in turn, be transmitted to their offspring, the third generation. Syphilis is the most potent factor in the causation of idiocy, paresis, paralysis, locomotor ataxia, insanity and other incapacitating diseases.

The fact must be emphasized that the disease is positively cureable, but this result can be brought about only by careful, intelligent but vigorous treatment extending over a period of at least three years. There is no doubt whatever as to the responsibility of the individual contracting it. He should not be allowed to marry until at least four years after the date of infection, and then only providing he has submitted to the prescribed treatment for a sufficient period, providing also, that no symptoms of active syphilis shall have appeared for a period of one year after the treatment has been discontinued; and, finally, only after submitting to a Wassermann or Noguchi test to determine whether or not the course of treatment has resulted in a cure.

It is not necessary to weary you with a longer recital of details. The situation is bad enough at best and calls for vigorous, systematized, individual and collective efforts for a betterment of existing conditions. The problems to be solved are clear, it remains only necessary to determine the methods of procedure. Many factors will contribute to a successful solution, but it is my firm conviction that in its final analysis it will resolve itself into the moulding and development of higher ideals of character. Whatever may be our conclusions as to the right of an individual to do with his own life as he pleases he must be made to recognize the fact that he is but a part of the social body, that he has obligations to the state as well as to himself and to his immedate family.

The double standard of morality must be abolished. This result may not be brought about in our generation nor in several more to come. It may never be universally accomplished, but the time is coming when it will be expected that a man's conduct before marriage be as free from immoral taint as he expects it today of the woman who is to be his wife. The solution of this problem, as does that of so many others, of a sociological character, rests very largely with the woman, the mothers of our land. Whenever they shall decide that their daughters, reared with the greatest care and that unselfish and self-sacrificing devotion which can be known only by a mother, shall be given in marriage only to those men whose past life shall bear the closest scrunity, then, and not until then, will men shape their lives and control their conduct so as not to ostracize themselves from good society.

Somebody has said that we have no aristocracy in our country. I challenge that statement. It is not the aristocracy of birth nor of dollars, as some sordid materialists would have us believe. It is the aristocracy of character and brains, membership in which is open to any man who does things and does them with a proper regard for his social, civic and moral obligations, and works with all his might for his own uplift and of that of his fellow man.

It may be charged that I am attempting to place woman on a pedestal to be admired of men. I admit the fact but not the purpose. To my mind the true womanly woman is the nearest earthly embodiment of Christ. Her life is one of unselfish devotion, self-sacrificing love and inexhaustible energy in the service of mankind. She is the moulder of character and through this agency controls the destiny of the human race. It is to this woman that we should look for help. I do not think that she will disappoint us.

ANNUAL CLINIC OF THE G. V. BLACK CLUB OF ST. PAUL, FEBRUARY 16, 17, 1911.

REPORT OF SUPERINTENDENT OF CLINICS.

BY DR. E. K. WEDELSTAEDT, ST. PAUL, MINN.

MR. PRESIDENT AND GENTLEMEN:

The clinic, which Dr. Johnson's essay closed this afternoon, was by far the most interesting that was ever held by you gentlemen. While the attendance was not so large as for several years past, what was lacking in numbers was made up by enthusiasm, attention to the clinical operations, and a much more extensive fraternal feeling than has hitherto been manifested at any of our other annual gatherings. When a thousand or twelve hundred men devote their entire time to the operations and table clinics and pay such strict attention to business, and that for two whole days, there surely is no cause for worry so far as this relates to the future progress of advanced dentistry.

Speaking personally, permit me to say that this year's clinic has been the smoothest, the most harmonious and the easiest to manage of any which has ever been held. There were a number of factors that assisted in bringing about this condition. In the first place there was not the awful crowd that usually attends the clinic. Next, it was a good natured crowd. Third, everybody wished to help in any and all ways possible.

The day before the clinic Drs. Farrell, Allen, Mackay and Rossteuscher came to the clinic room. Instead of as in the past, having nobody to help, these good men took hold and within three hours the clinic room was ready for the meeting. It was not necessary, as it has been in the past, to have one man work half the night to arrange the room. Many thanks and much more gratitude are hereby expressed to each and all of you gentlemen for your cordial co-operation and assistance. Without your help these words would not be written. In the past the superintendent of clinics has been all but dead for about ten days after the clinic closed.

The clinic was a most excellent one. Viewed from any point, it was magnificent. It surely seems that men from many sections have at last been awakened to the realization that there is something to advanced methods. It must be the case, for evidences of the development of this theory were constantly being impressed on the minds of other men by the remarks which were made by the visitors.

One of the visitors said: "The operations of these men are a positive revelation to me. The ease, the rapidity, the thoroughness with which the operations were made, all these things are such eye openers that it is a most difficult thing for me to believe what I am seeing."

This is merely one of the things said and it shows plainly how other men consider the methods which you use.

Most assuredly we were all delighted to see Drs. Black and Johnson. It is always such a great pleasure to have them with us. This year they both, as in the past years, worked altogether too hard; they did too much. You gentlemen worked too hard. Dr. Peterson, Dr. Hintz, Dr. Benson, Dr. Ridout, Dr. Mihleis, as well as Dr. F. S. Robinson, on whom the brunt of the burden of carrying the whole clinic rested, also worked too hard. Nothing could be done with the table clinicians. They would not listen to reason. They went at it at 9 a. m. and kept on till 1 p. m., although requested half a dozen times to stop; they simply answered, "When we get ready we will do so." Such an action on their part is most praiseworthy, but it is a good thing that Sunday is not very far away, for a little later they will, one and all, know that they have worked as never before in their lives.

A voice calls, it says: "You have had just eight hours' sleep during the past forty-eight hours. Your pedometer registers twenty miles that you have walked in that clinic room. The clinic is going on tomorrow. Will you not stop and obtain some much needed rest?" That voice is known and it is just so well to stop here and later on continue the story.

This is the day on which a person is supposed to rest. There will not be any rest for me, for this report must be finished today or never. There is a pile of papers on this table that must not be there tonight. So let the story continue.

We missed Dr. Woodbury, that dearly loved man from Council Bluffs. Sickness of a serious nature kept him at home. We missed Dr. A. D. Black. We missed those nice men from Seattle, and those rollicking good men from Winnipeg, and the enthusiasm of Dr. Eddy, but— Did you not enjoy those quiet, modest and unassuming men from the East? Is not Dr. Blaisdell from Portsmouth a delight? And was it not a joy to have Dr. Dill from Providence with us? Was it not a pleasure to hear what Dr. de Trey of Basel, Switzerland, said, and to observe the earnestness of Dr. Rogers from Buenos Ayres? Dr. Mackay from Gore, New Zealand, was at last perfectly at home. His four months' study with Dr. Searl had made him practically one of us. And what of the Iowa, the Missouri, the North and South Dakotas, the Wisconsin contingent and all the others? Yes, what? Pardon me, but the task seems too great for me to consider. Thanks for your encouragement, your interest and your kind words. If once more we shall hold an annual clinic, we shall all try to make it even more interesting than the one which was held this year.

As in all former clinics during the past ten years the chairs, brackets, engines, etc., were very kindly supplied by Mr. J. T. Ingersoll. Mr. Perry was at work early. Every chair was very nicely arranged for the operators. Towels and napkins were in place. The brackets were covered with a napkin on which was a filled alcohol lamp, a dish of pumice, cotton, an empty water tumbler, etc.

Not only at our annual clinic, but at each of the monthly clinics Mr. Ingersoll has very kindly furnished us operating chairs, engines, brackets, etc. Indeed, if it had not been for his assistance, there would never have been any clinics held by our members. We therefore return many thanks. The members of the Black Club and its friends shall hold both Mr. Ingersoll and Mr. Perry in memory very dear, and that for many years to come.

But to the program:

THURSDAY, FEBRUARY 16, 1911.

10:00 A. M.

OPERATIONS.

1.	Dr. A. C. Searl	Owatonna, Minn
2.	Dr. F. S. James	Winona, Minn.
3.	Dr. J. W. S. Gallagher	Winona, Minn.
4.	Dr. W. D. James	Tracy, Minn.
5.	Dr. G. D. Moyer	Montevideo, Minn.
6.	Dr. A. C. Fawcett	Rochester, Minn.
7.	Dr. J. A. Jones	Minneapolis, Minn.
8.	Dr. F. S. Robinson	Chippewa Falls, Wis.
9.	Dr. C. H. Robinson	Wabasha, Minn.
10.	Dr. W. G. Grandall	Spencer, Iowa.
11.	Dr. W. R. Clack	Mason City, Iowa.
12.	Dr. F. J. Yerke	Minneapolis, Minn.

TABLE CLINICS.

1.	Dr. J. B. Ridout	St. Paul, Minn.
2.	Dr. C. P. Peterson	Mankato, Minn.
3.	Dr. C. A. Hintz	Springfield, Minn.
4.	Dr. C. R. Topliff	Decorah, Iowa.
5.	Dr. E. Mihleis	Ellsworth, Wis.
6.	Dr. C. W. Benson	Duluth, Minn.

ESSAYS, 2:15 P. M.

1.	Dr. E. K. Wedelstaedt (Illustrated Lecture)	St. Paul, Minn.
2.	Dr. F. S. Robinson	Chippewa Falls, Wis.

ILLUSTRATED LECTURE, 8:15 P. M.

Dr. G. V. Black	Chicago, Ill.

1. Dr. A. C. Searl:

Operation—Gold Foil—Cavity, mesio-occlusal surface, lower right second bicuspid.

Somebody had made amalgam operations in the lower bicuspids. The disto-occlusal surface of the first bicuspid, and the mesio-occlusal surface of the second bicuspid had evidently been filled at one sitting. It was a mere nothing; worse, for a condition of faulty environment existed, surface contact, not an interproximal space had been created, just a nothing.

At the first day's session Dr. Searl made an operation on the second bisuspid, and at the third day's session he made an operation on the first bicuspid.

Dr. Blaisdell, of Portsmouth, very kindly reported this clinic, and he says: "The completed operation was a most beautiful one throughout." (It seems unnecessary to add, that the change of conditions which Dr. Searl's operation made, was of such a nature that the operations necessarily must be seen to do that justice to his skill and ability that the case demands.) Thank you, Dr. Blaisdell.

2. Dr. F. S. James:

Operation—Gold Foil—Cavity, disto-occlusal surface of an upper right first molar.

There are a number of men within the fold of the Black Club who are most accomplished operators, who have developed themselves to a degree regarding which it is unnecessary to speak. Dr. James is one of these men. No man living could have made a more beautiful operation, and very few men living are his equal when it comes to making gold foil operations.

What has just been said holds equally good so far as it relates to the operations which were made by all the men who operated at the clinic. It is positively out of all question to take each operation and use up all the known adjectives in giving expression to the beautiful results that each man obtained. It is impossible, for there are not enough adjectives to go around, and the writer of this report dreads repetition. Therefore, it is hoped that some allowance will be made and some charity be displayed in the criticism of this report, for the task to write it is something Herculean.

3. Dr. J. W. S. Gallagher:

Operation—Gold Foil—Cavity, mesio-occlusal surface, upper left first molar.

The operator is too well known for any comment to be made in so far as this relates to his skill and ability. He has few equals.

4. Dr. W. D. James:

Operation—Gold Foil—Cavity, distal surface, upper left central incisor.

Dr. James is another of the high-class men of known skill and ability. Dr. Toney, of Mandan, who gave a very glowing report of this clinic, says: "It required three and one-half sheets of No. 4 gold to make the operation and it took but one hour and thirty minutes from start to finish, not counting out numerous inspections and other things which caused considerable delay."

"The completed operation had beautiful margins and the patient was sincere in expressing his gratitude to Dr. James for the ease with which the cavity had been prepared and the operation completed."

5. Dr. G. D. Moyer:

Operation—Amalgam—Cavity, disto-occlusal surface, upper left first molar.

If a person is to judge an operation by the number of men around a chair, then this must have been a most popular clinic. Dr. Moyer knows what he wishes to do and the masterly hold which he has on conditions is such that he is much at home in making just such operations.

6. Dr. A. C. Fawcett:

Operation—Gold Foil—Cavity, mesio-occlusal surface, upper right second bicuspid.

Dr. Fawcett is another of the men who is a high-class operator. His operations must be seen to be appreciated. He certainly knows how to make dental operations.

7. Dr. J. A. Jones:

Operation—Gold Foil—Cavity, disto-incisal surface, upper right central incisor.

This operation involved over one-third of the crown of the tooth. It was surprising to observe four distinct things:

1st. The beautiful cavity preparation;
2nd. The rapidity used in making the operation;
3rd. The ease displayed by the operator, and
4th. The magnificent results obtained.

No comment, but plenty of compliments to you, sir.

8. Dr. F. S. Robinson:

Operation—Gold Foil—Cavity, disto-incisal surface, upper left lateral incisor.

If there is one man in the Black Club who is well grounded in the fundamentals of operative dentistry, it is Dr. F. S. Robinson. He is like all the other men. His operations are as clean cut as is he himself. He knows what he wishes to do; he knows how to do it also, and above all things he knows why he does it.

9. Dr. C. H. Robinson:

Operation—Gold Foil—Cavity, mesial surface, upper left lateral incisor.

Dr. Robinson made a beautiful operation. It was not the pleasure of the writer to see the finished operation, but is was seen several times during its various stages and just before it received the final polishing. Therefore it is called a "beautiful operation." Dr. Robinson is another of the high-class men.

10. Dr. W. G. Crandall:

Operation—Amalgam—Cavity, mesio-occlusal surface, upper right first molar.

About as far back as the memory of man runneth, Dr. Crandall has been one of the operators at the annual clinics of this organization. Until last year he was known as one of the par excellent men for his ability to make high-class gold foil operations. Last year he made such an amalgam filling that it called forth praise of a nature that would delight even the heart of a savage. Quoting Dr. Farrell of Cozad, Nebraska, who watched Dr. Crandall this year while operating, we have this to deal with: "I know now how to make amalgam fillings. This was a most beautiful demonstration. He certainly knows what he is doing." Now. Dr. Crandall, that is what Dr. Farrell said, and in saying it he meant it. Dr. Farrell is himself an operator of the very highest order, and it is a great pleasure to be able to tell you so in this way.

11. Dr. W. R. Clack:

Operation—Gold Foil—Cavity, disto-incisal surface, upper left cuspid.

Dr. Clack is another of the high-class men and the operation which he made stamps him as a man who is most familiar with methods and principles, as they relate to making dental operations. That in reality was a pretty operation.

12. Dr. F. J. Yerke:

Operation—Gold Inlay—Cavity, disto-occlusal surface, upper right first molar.

Now, this was something like it.

Dr. Yerke duplicated the various steps of his operation, beginning with the wax model, up to and including the cast inlay. The inlay he had in the cavity but not cemented to place. And it was a masterpiece. Dr. Yerke brought his private practice patient to the clinic. She had other operations in her teeth, and these the patient permitted everybody to inspect. She seemed almost as greatly interested in the clinic as though she herself were one of the operators. It is only here and there that such people are found. Such treatment was unusually nice of the lady.

Dr. Yerke certainly had as beautiful a casting as it was possible to make. Beyond this it seems unnecessary to say anything. This completes the operations for the first day.

FRIDAY, FEBRUARY 17, 1911.
9:00 A. M.

OPERATIONS.

1.	Dr. William Finn	Cedar Rapids, Iowa.
2.	Dr. C. N. Booth	Cedar Rapids, Iowa.
3.	Dr. J. V. Conzett	Dubuque, Iowa.
4.	Dr. F. S. James	Winona, Minn.
5.	Dr. G. N. Beemer	Mason City, Iowa.
6.	Dr. T. F. Cooke	Burlington, Iowa.
7.	Rr. C. C. Farrell	Cozad, Neb.
8.	Dr. E. T. Tinker	Minneapolis, Minn.
9.	Dr. F. S. Robinson	Chippewa Falls, Wis.
10.	Dr. G. A. Rawlings	Bismarck, N. D.
11.	Dr. Harry Mackay	Gore, New Zealand.

TABLE CLINICS.

1.	Dr. C. N. Johnson	Chicago, Ill.
2.	Dr. F. B. Kremer	Minneapolis, Minn.
3.	Dr. J. B. Ridout	St. Paul, Minn.
4.	Dr. C. P. Peterson	Mankato, Minn.
5.	Dr. C. R. Topliff	Decorah, Iowa.
6.	Dr. A. C. Searl	Owatonna, Minn.

ESSAYS: 2:00 P. M.

1.	Dr. T. F. Cooke	Burlington, Iowa.
2.	Dr. C. N. Johnson	Chicago, Ill.

Let me report the operations of the second day; then consider the Table Clinics and Essays.

1. **Dr. Wm. Finn:**

Operation—Gold Foil—Cavity, disto-occlusal surface, upper right second bicuspid.

The tooth was turned almost 90° on its axis. The disto-buccal angle contacting with the mesial surface of the first molar.

It was not an ideal case to handle, but the way in which Dr. Finn went at it showed at once that he must have treated many such cases. Dr. Finn is another of the high-class men who is most familiar with advanced methods. He certainly made a most beautiful operation for the consideration of the many men who witnessed his operation.

2. **Dr. C. N. Booth:**

Operation—Gold Foil—Cavity, mesio-occlusal surface, upper right second bicuspid.

When the mouth was examined, all of the molars on the right side of the upper jaw were missing. To make any such operation as the cavity in the mesio-occlusal surface called for, meant the use of much judgment and a still greater degree of skill. These Dr. Booth made use of and the result was an operation which was very greatly admired by everybody who examined it.

Those Cedar Rapids men must be like the Mason City ones; they must have a daily dental convention or they would not be able to make such beautiful dental operations.

3. **Dr. J. V. Conzett:**

Operation—Gold Foil—Cavity, occlusal surface, lower right second molar.

At this year's clinic, for some reason unbeknown, Dr. Conzett managed to get out of doing his usual bicuspid or molar operation. He made an operation in the occlusal surface of the lower right second molar, a combination filling of cohesive and non-cohesive gold being used. The operation was a very nice one and there are only compliments to be paid him for it and no comment to make.

4. Dr. Frank S. James:

Operation—Gold Foil—Cavity, mesio-occlusal surface, upper right first molar.

It was a lucky thing that Dr. A. D. Black remained in Chicago, for if he was expected to make any such operation as Dr. James made, he would have known before he was through that he had been operating.

Full three-fourths of the proximal surface was involved in a molar tooth that was twelve mm. in diameter linguo-buccally, so the cavity was full eight mm. broad linguo-buccally. But the way Dr. James went at and finished it merely confirms what has already been written about his skill and ability.

5. Dr. G. N. Beemer:

Operation—Cast Gold Inlay Bridge in Two Sections.

The lower left first and second molars had been extracted. The lower left third molar had tipped toward the median line. The lower left second bicuspid had moved, making a very nice dovetailed condition. A cavity was cut in the mesio-occlusal surface of the third molar, an inlay had been made to fit the cavity. A cavity was then cut in the disto-occlusal surface of the second bicuspid and an inlay made to fit it.

To the inlay in the molar, one-half the bridge was cast, the other half of the bridge was cast to the inlay in the bicuspid. The two castings then dovetailed into each other. When the two parts were placed together they not only fit, but were very secure. The pulp had not been removed from either tooth. This casting was very ingeniously made and Dr. Beemer is not only to be complimented on his ability to make such operations, but he should receive the thanks of everybody attending the meeting for bringing such a case to the clinic and giving us all a chance to examine it.

6. Dr. T. F. Cooke:

Operation—Gold Foil—Cavity, disto-occlusal surface, upper right first bicuspid.

There is no comment to be made regarding this operation. When it was completed nobody would have been able to have told it from any similar operation which had been made at the clinic. Dr. Cooke is a careful, painstaking operator and he needs no words of praise regarding the admirable operation which he made.

7. Dr. C. C. Farrell, Cozad, Nebraska:

Operation—Goil Foil—Cavity, disto-occlusal surface, upper left first bicuspid.

When it was found that Dr. Woodbury could not be present, Dr. Farrell was impressed. He took Dr. Searl's instruments and made the operation. Dr. Allen told us that Dr. Farrel was the best gold foil operator in the state of Nebraska. Dr. Allen himself, a very able man, made no mistake in his estimate of the ability of Dr. Farrell. He certainly made a most beautiful operation.

8. Dr. E. T. Tinker:

Operation—Cast Gold Inlay—Cavity, mesio-occlusal surface, upper left second molar.

The upper left first molar was missing. A cavity of decay existed in the second molar. The cavity was extended so as to involve the mesial and occlusal surfaces. The buccal marginal ridge was ground so that the inlay would protect it. The cavity on the occlusal surface was still further extended so as to include the disto-lingual groove. The wax model was now fitted so as to fill the cavity and space where the first molar had been extracted. The casting filled the cavity and space most beautifully.

There was a very high order of skill displayed in the making of this operation. The fame of Dr. Tinker as an inlay operator is very great, and that is all that is necessary to say.

9. Dr. F. S. Robinson:

Operation—Amalgam—Cavity, linguo-occlusal surface, lower left second molar.

The making of this operation was like other of Dr. Robinson's operations. It was most excellent. It could not have been better. Thank you, Dr. Robinson.

10. Dr. G. A. Rawlings:

Operation—Gold Foil—Cavity, mesio-occlusal surface, upper left first bicuspid.

A very careful operator who makes his operations in a most thorough manner, obtaining very beautiful results. He is one of our men who knows advanced methods but who is altogether too modest. He made as excellent an operation as could be made.

11. Dr. Harry Mackay, Gore, New Zealand:

Operation—Gold Foil—Cavity, mesio-occlusal surface upper right first molar.

Last October this young man came to this country to study the Black methods. He has been at Owatonna ever since that time, studying and operating under the care of Dr. Searl. He has an excellent hold on the fundamental principles. He made a very beautiful operation. Not only did he bring credit to himself, but he brought it also to his very able teacher.

12. Dr. C. R. Topliff, Decorah, Iowa:

Extraction of several lower third molars, which called forth great enthusiasm from all those who witnessed his operations. Nothing was too much for Dr. Topliff to do. He was ready and willing, both morning and afternoon, to assist in freeing anybody from pain. It is only possible to say, so many thinks, my good man, for your assistance.

13. Dr. Greene Vardiman Black, Chicago, Ill.:

"Flushing out and washing the sub-gingival spaces."

A large syringe was filled with warm saline water. Then a crowd was collected around the chair. At this time the operator picks up the syringe and discharges its contents against the labio-gingival line of the upper central incisors. Result: As the syringe holds four ounces of water, and it is emptied in two seconds, everybody around the patient, including the operator, receives a shower bath. Very skillfully done. A very excellent but moist demonstration, causing much surprise and many wet faces. This demonstration was made about one dozen times, till everybody had wet collars. Then, and not till then, was Dr. Black satisfied.

There was something very odd about the Table Clinics. No less than four or five gentlemen brought various original methods for casting aluminum. If attention to the demonstrators is indicative of the interest in a subject, then it is only necessary to say that several hundred men who attended the clinic are very greatly interested in casting metal plates.

1. Dr. J. B. Ridout:

Castings of every sort. Exhibition of use of blow pipe and solder.

For the past ten years Dr. Ridout has appeared at each of the clinics, and where he demonstrates such a mass of human beings congregates that a man wonders how it is possible to hear, much less to see what is going on.

Dr. Ridout is a man who can do things, a man possessing a high order of intelligence which he makes use of in his demonstrations. It is therefore no wonder that other men, recognizing his skill and ability, desire to take as much of it away as possible.

The doctor, as usual, demonstrated on both days of the clinic and did whatever the men requested in a mechanical way.

Thank you, Dr. Ridout. You were very nice to us, and today you are very tired.

2. Dr. C. P. Peterson was another of the good men who tried to outdo himself. His table was covered with a furnace, muffle, his own construction; cast aluminum plates of every description; some with teeth mounted, some unmounted; aluminum flasks, and goodness alone knows what not. From the crowd surrounding Dr. Peterson's Table Clinic, he surely had a most popular subject with which to deal.

3. Dr. C. A. Hintz:

Here was another of the kind men who was in demand. Models of cast bridge mountings, cast gold crowns, cast gold bridges, cast gold plates, cast gold half crowns. Many of these were mounted on articulators with the teeth in position. It was very nice of you also, Dr. Hintz, to come and work so hard for the success of the meeting. You most certainly had an interesting display.

5. Dr. E. Mihleis:

The doctor brought his own flask and gave a demonstration of casting an aluminum plate from start to finish. And a very beautiful plate was the result. If he is able to obtain similar results every time, he certainly has a degree of skill in this direction that is not often met with. Thank you, Dr. Mihleis, you were very kind to come to the meeting and assist us in the way you did.

7. Dr. C. N. Benson:

Contouring single banded gold shell crown, using a modification of the Peeso pliers.

Dr. Benson took the pliers named and studied them, made an improvement in them, and this has added greatly to their value.

It was an impossibility to get anywhere near his demonstration on account of the crowd that constantly surrounded his table. He was requested to stop and rest, as he was not invited to the meeting for the purpose of being worked to death, but he continued on and on until he, too, had to give up. Thank you, Dr. Benson, for assisting us to make this year's meeting so interesting. It was certainly very nice of you.

7. Dr. C. N. Johnson:

Models of practical cases of cast gold inlays.

Second day: The new Taggart crown.

Dr. Johnson also demonstrated on both days of the meeting. He also was requested to spare himself, but it was a waste of words. It was no use. He worked until he was ready to drop, and then nature rebelling, he stopped. It was long past time. It was not possible to get anywhere near Dr. Johnson's exhibit, so the writer is compelled to say, from the evidence presented, ten men deep around the table clinician, that what he had must have been very interesting. Thank you, Dr. Johnson, for your kindness. And should you come again, please do not work so very hard.

8. Dr. F. B. Kremer:

Models of many cases showed what improvement is made by paralleling and straightening out abutments, which permits of making proper contact. It is impossible to speak of the number of different cases which Drs. Kremer and Tinker brought to the meeting. There were two good sized grips full and practically every sort of a case was illustrated or reproduced in plaster of paris models which showed, or had in position, the appliances or methods used for restoring the abnormal to normal conditions.

Both these gentlemen did a great work and the thanks of the members of the club are theirs, as well as still more thanks from those who were allowed the privilege of examining and making studies of their many models, and the means used for correcting their defects. Thank you, gentlemen, say we.

9. Dr. A. C. Searl:

Models of original method for casting aluminum plates.

Of this demonstration it is not possible to speak, for the demonstration was completed before the writer had a chance to obtain any information regarding it.

ESSAYS.

The literary portion of the meeting was opened with an essay which was delivered by the writer of this report. Your reporter does not feel qualified to comment on his own essays. Doubtless the essay will be printed in this number of the journal, and the reader of these words is most respectfully referred to it, provided that he is interested in some causes which lead to the failure of dental operations.

Dr. F. S. Robinson's essay on "Recreation" was just like Dr. Robinson. It was bright and breezy. Drs. Johnson and Cooke, who discussed it among others, handed out much good advice which, if followed, will merely tend to prolong the life of a human being.

In the evening came that dearly loved man, Dr. Black, who held our interest for one hour and a half while he talked to, and told us, of methods for preventing the formation of "Salivary Calculus," a subject in which everybody was interested. Dr. Black talked to us without notes. For a dozen or more years he has been coming up here, but he has always read us a lecture. We all hope that the grand man will in the future talk to us, for he is a most delightful speaker.

And on the morrow came our good friend, Dr. Cooke, of Burlington, Iowa. If the reader of these words wishes food for reflection, assimilation and digestion (thanks to Dr. C. H. Robinson) let him read Dr. Cooke's essay about three times, for it surely is a literary treat and gem.

And then came that dear man whom all love, Dr. C. N. Johnson, and he gave us his ideas of things. In his own way he told us of the need for caring for the teeth of school children and educating the public regarding the need of dental service. Oh! read his essay. He tells it better than anybody else. And this closed the meeting.

AFTERMATH.

Third Day:

On the morrow about fifty men who were still far from satisfied remained over.

Dr. Searl, Dr. Fawcett and others made operations, and at 2 o'clock about forty sat at table and had lunch. Thereafter still more took place in which the reader is not very greatly interested.

This closes another of our annual clinics. It was a wonderful meeting. It was wonderful from the fact of having the interest so very great. Every man seemed bent on obtaining all the knowledge possible. The attention to the operations was closer than at any other meeting which has ever been held.

The table clinicians had their hands filled to overflowing. The men seemed positively hungry for knowledge.

One bright spot exists that it may be well to tell, for it stands out more prominently than the others. Early in the week Dr. Yerke telephoned me, asking if he was expected to operate. (He was down for cast gold inlay operation.) When he was told that something might possibly arise and some operator be unable to come, he said: "I'll take my instruments over and you just call on me to help you in any way possible, and I shall be so glad to do it." Was that not nice of him?

Everybody seemed out for business. Never was there an audience which was so quiet, so attentive, that seemed absolutely to drink in the words of the speakers, as was this audience that confronted the essayists at this year's annual clinic.

Drs. Farrell and Allen came from Nebraska. They came four days in advance of the meeting, and my! what a help they were to me. Dr. Rossteuscher came from Yankton and Dr. Mackay from Owatonna twenty-four hours in advance of the meeting. On them, and Drs. Zeiger and Abernathy, was the heavy load thrown to take care of the people; and they acquitted themselves most beautifully. Everybody was so nice, so desirous of helping that it was almost impossible to believe things could be made so easy for the superintendent of clinics.

Thanks to all of you, and may the best in the world be yours.

(It is now nearly nine o'clock at night. For over eight hours my thoughts have been on the clinic and my pencil has written as fast as possible. To carry all these operations in your head is asking too much. Doubtless mistakes have crept in, I hope not; if so, please pardon me. Every apology is offered for this hastily written report. It is this now, or nothing later on.)

THE DENTAL REVIEW.

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EDITORIAL.

THE DENTAL EDUCATIONAL COUNCIL OF AMERICA.

This is an organization, the object of which, as stated in one of the articles, "is for the advancement of dental education and the unifying of the standards of the various national bodies of the dental profession." The council is made up of fifteen delegates, "five of whom shall be appointed by the National Dental Association, five by the National Association of Dental Examiners, and five by the National Association of Dental Faculties."

The function of this body is of course purely advisory. It hopes to make a thorough investigation of the kind of dental education now being offered by the various colleges, and to make reports of its findings. Much complaint has been made in the past regarding the character of work being done by some colleges, and the council hopes to learn the true state of affairs. While it may be impossible for this, or any other commission, if they find men engaged in college teaching who are unqualified or worse, to provide these men with a conscience, yet it may be feasible to take the matter to state boards and thus exert a certain pressure upon the derelict colleges and bring about reforms.

Another matter worthy of consideration relates to the fact that many of the differences which have arisen between the colleges, state boards, and the profession at large, are due to prejudices and misunderstandings which find their origin in a lack of mutual confidence and respect. This council hopes to bring about a better understanding between the various interests involved, and to emphasize the fact that while there are colleges which are doing indifferent work, there are others which are working faithfully for the general uplift of dentistry.

A calm and deliberate consideration of the entire question on the part of the boards, the colleges and the dental societies cannot fail of benefit, and this is the mission of the council. A report of the present year's work will be made at the next meeting of the three national bodies and we bespeak for this report a most careful study on the part of the entire profession.

EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 9.)

My Dear Boy:

You are a practitioner now but you will continue to remain "my boy" as long as you and I live. You may congratulate yourself that you have come into the profession at a most favorable time. Never before in the history of dentistry has there been such a demand for dental service and never before has this service been so well rewarded. People are awakening to the true significance of the teeth as a part of the human economy and of the necessity of caring for them to get the greatest measure of comfort, happiness and longevity of life. You are falling into a rich heritage bequeathed to you by the conscientious labors of generations of dentists long past—men who have worked unselfishly and faithfully to the end that dentistry should be raised to its present commanding position among the professions of the world. I wish I could impress you with the fact that you are under obligation to every man who has contributed to the progress of dentistry whether by writing books or articles for magazines or by doing good work at his chair. The average young practitioner is too much inclined to take for granted all the bountiful harvest of knowledge which has been so lavishly laid at his feet by his predecessors. He accepts it as an offhand matter of fact, and he recks not of the sacrifice others have been obliged to make to raise dentistry to the position which it occupies today. Whenever you hear the name of an old practitioner, living or dead, who has added something to the sum total of dental advancement, take off your hat. You will never lower yourself by showing respect to older men, and in those instances where you see operations which have been performed by men much your seniors and those operations are not up to the standard of today do not sneer. Remember the thousand and one things which might have operated against the performance of good work, and remember the struggles and difficulties which the older men had to overcome in order to be able to do work at all. Methods of practice have been systematized and simplified in the past decade, and appliances have been devised to render the performance of operations easier. You are picking the fruit of other men's planting, and if in the cultivating process some indifferent results were obtained and poor work was done you should be the last man in the world to cast reflections. In your professional career you will probably be called upon to test out new ideas in practice and if some of your work fails—which it will—you would not relish the ungenerous criticism of those who see the work in after years. Cultivate the same charity for others which you would wish meted out to you, and you will not go far astray.

One thing at this time needs emphasis. All through college it has been drilled into you in one form or another by all of your teachers, and yet a final word may not be amiss. I refer to the tendency toward quackery on the part of some men in our profession, in fact, in every profession, because no profession is free from the incubus of the quack. It seems unfortunate that every calling must suffer the handicap of having men connected with it whose point of view is such that their influence and example tend to drag down instead of build up—men who care nothing for the reputation of the profession but seek only their own financial gain. And the significant fact is that so very few of this type of men ever attain to anything, financially or otherwise. Quackery does not pay in the end in any relation of life, and it seems pathetic when a young man with all the prospects and possibilities of life before him becomes so warped in his judgment as to adopt quack methods. Today when there are so many opportunities for legitimate practice there is no excuse for a recent graduate to become a quack.

Right living after all is the basis of success in life, and in the professions particularly it is absolutely essential for any permanent success. No man can be crooked, dissipated, or immoral—no matter how brilliant he may be intellectually—and attain to anything of lasting value. I have studied the careers of men somewhat carefully, and I say to you now at the threshold of your professional life that there is no rule more invariable than the one which says that a man's sins will find him out.

But I have already said enough to you along these lines in former letters and I must now—I confess somewhat reluctantly—leave you to work out your own destiny as best you may. After all, it is upon you that the final responsibility must fall and no one except yourself has it within his power to make or mar your career. And yet I never see a class of graduates go out from college without the wish that it might be my privilege to stand beside each boy for the first few years of his practice, to help guide him over the rough and dangerous places, to pat him encouragingly on the back whenever he does a good thing, and to place my arm around him and point to the sunshine behind the clouds in those hours which are sure to come to every one of us when the portents of all that is malicious and evil seem to encompass us about and make life scarce worth living. It is then that poor frail humanity needs the encouragement of sympathetic and true hearted friendship, and it is then above all else that I wish it were possible for me to be beside "my boys" to lend them the aid of which they are so likely to stand in need.

But this, of course, is a fruitless wish, and I must content myself with whatever good I have been able to do for you during your college course and let that suffice. But no, on second thought that is not enough. If I absolved myself from further obligations to you at the moment of your graduation I should consider myself illy suited for the important office of preceptor. So long as you and I live if there is anything which I may do for you to aid you in your progress and to assist you to higher ideals of professional attainment I hope you will feel as free to call on me for assistance as you have during your college days. If I can see you go out into the world with the conviction that you will always come to me when in trouble, I shall find it less difficult to say my goodbys so far as these letters are concerned.

And now, my dear boy, I need not assure you that our associations while you were in college have been to me most pleasant. I have profited by them fully as much as you, and I hereby wish to make my public acknowledgments to the influence which has been exerted upon me by my contact with young men. I have worked with them much and I owe more to this than to any other one factor in my professional experience. They have been my chief inspiration to bigger and better things, and they have helped to keep me feeling young in spirit when the pressure of many responsibilities would otherwise have bowed me down. I thank from the bottom of my heart all the boys whom I have ever known.

Sincerely your friend,
The Preceptor,
C. N. J.

PRACTICAL HINTS.

Edited by J. E. Schaefer, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, The Dental Review, 55 State Street, Chicago, Ill.]

To Remove Cement:—A piece of wet pumice stone will remove cement from the mixing slab with ease.—*J. H. Pearce, D. D. S., Peoria.*

Hold Solder in Place:—To keep solder in place add a little gum arabic to your flux, and rub with the borax and water on the slab.—*R. H. Daniels, Peoria.*

The Wax Model:—After the wax model for an inlay has been mounted on the sprue, it should be examined carefully through a small magnifying glass. This will often disclose slight imperfections which can be corrected outside of the mouth, thus saving much time and helping toward the success of the operation.—*O. De Forest Davis, D. D. S., Minneapolis.*

To Remove Iodin Stains from Teeth and Gums:—Allow patient to rinse mouth with a one or two per cent solution of sodium hyposulphite (the "Hypo" used by photographers). For removal of stains externally on face, hands, etc., use it in a saturated solution. This should be used while stain is fresh as old stains do not respond readily.—*P. G. Puterbaugh, D. D. S., Chicago.*

Care in Sealing Treatments:—Soreness of teeth often results from sealing in treatments with temporary stopping or some other material the insertion of which may cause pressure. Even if the stopping is inserted without causing pressure the elasticity of the gutta percha may transmit the pressure of mastication to the root canals and soreness results. This can be avoided by sealing in all treatments with cement. In order to avoid drilling out a bulk of cement put a pledget of cotton over the root canals or fill the cavity of the tooth almost to the surface with cotton and flow a layer of thin cement over this.—*J. A. Heidbruik, D. D. S., Minneapolis.*

The Adapting of Platinum Matrix in Porcelain Inlay Work:—Take an impression of the cavity in modeling compound. Over that portion of the compound that fits in the cavity place a suitable piece of platinum foil and roughly adapt with some cotton. Vaseline that surface of the platinum which is in contact with the cavity to prevent tearing, and gently but firmly force to place with the modeling compound; the tooth and modeling compound acting respectively as die and counter-die. The margins should now be burnished and the matrix once more swaged to place finally, when a perfect adaptation will be obtained. Fill with inlay wax, chill, to prevent distortion, and remove when the wax may be readily burned out.—*A. Dangar Burne, B. D. S., D. D. S., Sydney, Australia.*

Importance of Contact Point:—No matter how well a filling may be made, how perfect may be the cavity preparation, how well the filling may be condensed, if the contour of the tooth is not properly reproduced, the inter-proximal space preserved, or reproduced if it has been lost, the filling is not a success and will not give the patient the comfort that he has a right to expect and demand. I have very frequently removed fillings for no other reason than that the contact point had been so poorly made, the filling so poorly contoured that the patient was in constant misery every time he ate fibrous food. In order to obtain the proper contour there must be a separation in order to restore the portion of the tooth that has been lost by the process of decay, this space may be obtained in any way that suits the operator, either immediate with the separator, or previous separation by any means that he may prefer.—*J. V. Conzett, Dubuque.*

Casting Gold Inlays from Cement Models:—Prepare cavity, beveling all margins, even gingival.

Take impression of cavity with perfection modeling compound, using Dr. Roach's impression cups shaped to take margins accurately, also a bite to be mounted on articulator. Imbed impression tray in plaster, and when set mix Ames, technic cement, working it well into the corners of impression. Remove cement model with hot water and make up wax model of inlay hollowing it with a suction carver, to reduce contraction of gold in casting as much as possible. Remove all beads of gold after casting and try on model, burnishing all margins and finishing filling to a complete polish while on the cement model. The advantages are, first, minimum amount of time for patient in the chair; second, ease of working out of the mouth; third, control of excessive contraction, especially at the gingival margins; fourth, complete finishing of filling on model, keeping margins perfect.—*W. G. Burkhardt, D. D. S., Chicago.*

Occlusion Plus Articulation. No. 1:—There is a distinction between occlusion and articulation, as applied to artificial dentures. In the construction of this class of work most dentists are satisfied with occlusion. And yet the efficiency of the dentures lies in the possibility of the patient being able to articulate them. Occlusion is the position of rest, i. e., when the mandible is in its most posterior normal location, and the teeth are all properly interdigitated. Articulation is any other position of contact existing between the teeth other than the position of rest. To have dentures occlude only is to give your patient an inferior working apparatus, an appliance by which they can only crush their food. It means to have the food poorly prepared for digestion. Any attempt by the patient to use a lateral motion, where teeth are only occluded, ends in failure, or rather a dislodgement of the plates; food and plates becoming entangled, an uncompromising position. To construct dentures that articulate is to give your patient a higher article, brains incorporated in a mechanical appliance. Articulation means efficiency; it means your patient can grind food; triturate it, if you please. To say there is nothing to it is to profess that one does not thoroughly understand it. To say it can be had in every case is to over estimate its possibilities. Is it practical? Yes.—*J. E. S.*

Device for Fastening Loose Teeth:—A strip of 24 karat gold plate 36-gauge, about 2 mm wide and of little more than sufficient length to surround the tooth, is placed around the tooth so that the upper rim of band is even with the occlusal surface. With a pair of pliers the two ends are taken labially and drawn tightly together, after removing and annealing place back, and, while holding band in position with left hand, burnish the lingual and proximal surfaces of gold onto the tooth, thus getting perfect adaptation, release pliers, remove band and solder with 22 karat solder, the applied borax will keep the two ends together while band is being held in flame on lingual side with tweezers. Now cut away labial protrusion, burnish again onto tooth and one band is ready. After repeating this process on as many teeth as necessary take an impression with soft plaster, but care must be taken not to let plaster overreach the bands; after setting remove plaster, which will come readily, and with bands in situ on impression, fill out to obtain model. Add a pinch of tenax to plaster to prevent cracking of model while soldering bands together proximally with 20 karat solder. If rigidity is required let solder flow over lingual surface of bands to desired strength. Polish and cement in place.—*A. Swierczek, D. D. S., Chicago.*

Filling Large and Medium Pulp Canals:—After the canals have been made ready to fill, dry as thoroughly as possible and fill same with sandarac varnish, this should be thick enough to bead on the broach. Select clean gum sandarac crystals and triturate to a fine powder. To this powder add a sufficient quantity of sandarac varnish to dissolve the crystals and on a glass cement slab and strong broad spatula spatulate same until the mass has partly dried. The proper proportions of liquid and powder are shown when the mix is an amber color and not granular. Cleanse the spatula and roll mass into small cones, not over four or five millimeters in length, suitable in size for the case. Roll the cones on that part of the slab used for mixing, as the roughened surface facilitates the procedure.

Remove all excess of varnish in the canal, as it is not desirable to re-dissolve the cone, as shrinkage would result from evaporation. The cone as used is solid gum sandarac and will dry without any perceptible change in bulk. Introduce a cone into the canal and with as large a canal plugger as will enter the opening, gently push the point as far as the plugger will go; select a smaller plugger that will reach well to the apex and with a gentle push and lateral motion, the cone may be moulded to the apex and condensed or pressed against the walls of the canal. Other cones are introduced and moulded in the same manner. In the largest canals the cones are introduced in the openings made by the plugger. In the medium sized canals it is usually possible to condense the filling solidly from the apex to the floor of the pulp chamber. After the canal is full, tightly wrap cotton on the canal plugger, moisten with water and press firmly on the filling. The water hardens the material and the filling may be made homogeneous throughout its entire length, as the plugger will not puncture this hardened portion but transmit the pressure throughout the entire length of the canal filling. The pluggers used for this class of canals should be spring tempered and highly polished and during the operation should receive frequent cleansings. *—A. D. Kyner, D. D. S., Moweaqua.*

MEMORANDA.

WISCONSIN STATE DENTAL SOCIETY.

The forty-first annual meeting of the Wisconsin State Dental Society will be held at Eau Claire, Wis., July 11, 12 and 13. All ethical members of the profession are cordially invited. O. G. Krause, Secretary.

AMERICAN DENTAL SOCIETY OF EUROPE.

The American Dental Society of Europe will hold its next annual meeting in Dresden, Germany, July 28, 29 and 31. A most cordial invitation is extended to members of the profession to be present. T. G. Patterson, Hon. Secretary, 2 Quai des Eaux-Vives, Geneva, Switzerland.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The next meeting will take place at the Hollenden Hotel, Cleveland, Ohio, Saturday, July 22, at 10 a. m. The Executive Committee will meet at 9 a. m. the same day. Anyone having business to transact with the committee will please present it at that time. B. Holly Smith, Chairman Executive Committee.

WYOMING STATE BOARD OF DENTAL EXAMINERS.

The Wyoming Board of Dental Examiners will meet to hold examinations at Cheyenne on the 6, 7 and 8th of July, 1911. Applications for examination must be in the hands of the secretary fifteen days before the meeting of the board, with the fee of $25.00. For further information address Peter Appel, Jr., Secretary, Cheyenne, Wyoming.

COLORADO STATE DENTAL ASSOCIATION.

The twenty-fifth annual meeting of the Colorado State Dental Association will be held in Boulder, June 29, 30 and July 1, 1911. A program of especial interest has been arranged. All ethical members of the profession are cordially invited to attend all the sessions. Charles A. Monroe, Secretary.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The twenty-ninth annual session of the National Association of Dental Examiners will convene at the Colonial Hotel, Cleveland, Ohio, Monday and Tuesday, July 24th and 25th. Beginning at 10 a. m. Monday, three sessions will be held daily until the business of the Association is completed. Members of all state boards, whether members of this association or not, are invited to attend. T. A. Broadbent, Secretary, 705 Venetian Bldg., Chicago, Ill.

SOUTHERN CALIFORNIA DENTAL ASSOCIATION.

The Fourteenth Annual Meeting of the Southern California Dental Association will be held in Los Angeles June 27th to the 29th, 1911, the session of the stomatological section of the American Medical Association being held here on the same date. Both meetings convene at the College of Dentistry located at Fifth and Wall streets. The profession throughout the country is most cordially invited to join with us in the enjoyment of these important meetings. B. Frank Gray, Chairman Publicity Committee.

MINNESOTA STATE DENTAL ASSOCIATION.

The twenty-eighth annual meeting of the Minnesota State Dental Association will convene in Masonic Temple, Minneapolis, June 9-10, 1911. Neither pains nor expense have been spared to make this the largest session in the history of our association. Dr. C. N. Johnson of Chicago will present a paper on "Care of Children's Teeth," and Dr. W. H. G. Logan of Chicago will give a stereopticon lecture entitled "The Diagnosis, Treatment and Prognosis of Phagedenic Pericemental Alveolitis." In addition there will be chair clinics to the number of thirty, supplemented by a large table clinic in which well known members of our profession from Minnesota, Iowa, Wisconsin, North and South Dakota will participate. An extensive manufacturers' exhibit will also be another feature. All ethical men are cordially invited to attend. Benjamin Sandy, Secretary, 827 Andrus Building, Minneapolis, Minn.

REPORT OF THE FIFTH INTERNATIONAL DENTAL CONGRESS.

In answer to numerous inquiries, I beg to announce that the first volume of the "Transactions of the Fifth International Dental Congress" is already printed, but that it will not be delivered because of the expense of sending (something like 2000 M.) till Volume II is ready to accompany it. The delay in issuing the "Transactions" causes me as much regret as anyone, but was made inevitable by the tardy receipt of the lectures and the section reports, which were very slow in coming in, in fact some of them have not even yet been handed in. It also took quite a good deal of time to get the illustrations ready, some of which are very superior. I hope, in spite of the fact that the published work has not been got out quite so soon as was expected, it will nevertheless meet with a cordial reception from all concerned. I furthermore trust that both volumes will have been received by all participants in the Congress by the time the Central-Verein meets, or, at the very latest, by the time of the annual session of the F. D. I. in London. Schaeffer-Stuckert, General Secretary.

CALL OF ORAL HYGIENE CONFERENCE.

The Oral Hygiene Committee of the National Dental Association hereby issues a call for a conference on Oral Hygiene to be held in the Engineers' building, Cleveland, Ohio, Friday, July 28th, 1911, at 8 p. m. This conference is called for the purpose of bringing together the Oral Hygiene workers of the country, with the object of discussing suitable ways and means of handling the Oral Hygiene problem of this country in the most effective and economic manner. The object of issuing a call for a meeting at this time and place is that the National Dental Association meets in Cleveland, Ohio, July 25th to 28th, and the conference will be held immediately following the National Dental Association meeting. The committee earnestly desires that every member of the profession interested in the all important qustion of Oral Hygiene make it a point to be present at this meeting. The Oral Hygiene Committee of The National Dental Association—W. G. Ebersole, Chairman, E. P. Dameron, Richard Grady, J. P. Corley, H. C. Thompson, B. Holly Smith, W. A. White.

W. D. MILLER INTERNATIONAL MEMORIAL FUND.

To the Members of the Dental Profession: During the past three years, an international committee has been engaged in getting subscriptions to the W. D. Miller International Memorial Fund. An appeal has been twice made by the Committee of the National Dental Association of the United States to the various state and local societies for subscriptions. Some of the states have subscribed liberally, while others have not yet done so. The object of this movement on the part of the International Dental Federation is to create a permanent fund, the interest upon which will be used annually in the form of an award to some practitioner whose achievements in original research work, invention, or in the advancement of the art and science of dentistry, place him foremost among his fellow practitioners. The decision of the International Committee has been to award a medal, a diploma, and a sum of money. This award is not to be regarded as compensation for the doing of scientific work, but it is bestowed as an honor and in recognition of distinguished services to the profession. It is the desire of the committee of the N. D. A. to complete this fund before the annual meeting in Cleveland, July 25th, next. We earnestly request a contribution from every member of the profession who has not already subscribed. (Signed) William Carr, B. Holly Smith, Truman W. Brophy, Chairman Committee National Dental Association.

The Executive Council of the National Dental Association is issuing this letter to the profession, hoping that it may be acted upon by state and local societies, and that contributions may be made to this fund, not only by societies, but by members of the profession generally. Subscriptions should be made to the chairman of the committee. Edward S. Gaylord, President; H. C. Brown, Recording Secretary.

NATIONAL DENTAL ASSOCIATION.

The fifteenth annual session of the National Dental Association will be held in Cleveland, Ohio, July 25th to 28th and the indications are favorable for this being the best meeting the national has ever held. Cleveland is a beautiful city of 600,000 population, with exceptionally good rail and water transportation facilities; ample and convenient hotel accommodations; well arranged halls for meetings, clinics and exhibits; extensive and beautiful boulevards and parks, and a local dental society, with 140 members, actively engaged in making preparation for every convenience and comfort of those who may attend, which goes far in making a successful meeting. The complete program will be published in the July Dental Journals, but will state that the Clinic Committee has given assurance that they will have some 300 clinics, and the following have been secured as essayists: Drs. S. G. Perry, New York City; R. H. Hofheinz, Rochester; C. N. Johnson, C. S. Case and Frederick B. Noyes, Chicago; Charles S. Butler and F. W. Low, Buffalo; Joseph Head and J. G. Lane, Philadelphia; W. R. Clack, Mason City, Ia.; E. M. Kettig, Louisville; Alfred G. Fones, Bridgeport, Conn; George H. Wright, Boston; R. W. Bunting, Ann Arbor, Mich.; W. O. Hulick and W. H. O. McGehee, Cincinnati, and Varney E. Barnes, Cleveland. Wednesday evening, July 26th, is to be devoted to an oral hygiene meeting, and Dr. Eugene H. Porter, New York State Commissioner of Health, has been invited to address this session. The Revision Committee has called a meeting for 9 a. m., July 24th, at the Hollenden Hotel, and have invited every state society and national dental organization to send a representative to meet with them. Railroad rates of a fare and a half, certificate plan, will be granted. The local committee seem confident that we should have at least 3,000 dentists in attendance, and are making arrangements accordingly. When we consider the favorable conditions, as outlined, we trust their expectation may be more than realized. The interest of yourself and clientele are best served when you accept every such opportunity for professional advancement; therefore, you cannot afford to miss this meeting. General information concerning the local arrangements can be obtained by addressing Dr. Geo. H. Wilson, Chairman, 701 Schofield Bldg., Cleveland. Hotel reservation can be made through Dr. H. C. Kenyon, 730 Rose building, Cleveland. Membership in your state dental society or allied societies make you eligible to the National; membership fee, $5.00. Application blanks may be secured from the secretaries of the state societies, or from Dr. Charles W. Rodgers, Cor. Secretary, 165 Harvard street, Dor., Boston, Mass. Fraternally, Homer C. Brown, Rec. Secy; Edward S. Gaylord, President.

NATIONAL DENTAL ASSOCIATION.

COME TO CLEVELAND FOR THE NATIONAL DENTAL ASSOCIATION, JULY 25, 26, 27, 28, 1911.

Program:—A full literary program, approximately 300 clinics, unusually large and varied dealers' exhibit, an ideal convention city, and your presence required to further the great interests confronting the profession of today, viz: State and national reorganization, oral hygiene, national journal and good fellowship.

Railroad Rates:—Since the advent of the 2-cent fare, concessions have not been made for our national meetings, but this year a concession of one and one-half fare (certificate plan) by the Central Passenger Association, with modifications by the other passenger associations, has been granted. Those residing in territory outside of the Central Passenger Association, should consult their ticket agent, and if satisfactory information cannot be obtained, write to Dr. G. D. Lovett, 761 Rose Bldg., Cleveland, Ohio, and he will instruct you.

As 1,000 certificates are required and the number returned will much influence future concessions, it is desired that every one attending the meeting shall obtain a convention certificate with his railroad ticket, and present the same to the Information Bureau upon arrival. You are requested to do this whether you wish to return by the same route or not.

Hotels:—Below is given a list of the principal hotels with their rates. You should write the hotel of your choice and make reservation early. A large attendance is assured.

European Plan—Hollenden Hotel, Superior and East Sixth. Headquarters for National Dental Association and National Faculties Association.

Single without bath, $2.00; double without bath, $3.00; bath from 50c to $2.00 extra. Colonial Hotel, Colonial Arcade and Prospect Avenue. Headquarters for National Association Dental Examiners. Single without bath, $2.50; double without bath, $4.00 and $4.50; bath from 50c to $1.50 extra. Hotel Euclid, Euclid Avenue and East 14th. Headquarters for clinicians. Single without bath, $1.50 and $2.00; double without bath, $2.50 and $3.00; bath from 50c to $2.00 extra. Gilsey Hotel (Stag), East 9th St. Double without bath, $2.00 and $3.00; double with bath, $3.50 and $4.00. Tavistock and Wyandotte, Huron Road and East 9th. Single without bath, $1.00 and $1.50; double without bath, $2.00 and $2.50; bath 50c to $1.00 extra.

American Plan—Colonial Hotel "A Famous Cuisine." Single without bath, $4.00 and $4.50; double without bath, $7.00 and $8.00; bath 50c to $1.00 extra. Tavistock and Wyandotte. Single without bath, $2.00; double without bath, $4.00; bath 50c to $1.00 extra. Forest City House, Public Square. Single without bath $2.00 to $3.00; with bath, $3.50. American House, $2.00 to $3.00. Kennard House. Single without bath, $2.00 to $2.50; double without bath, $4.00 to $5.00; baths $1.00 to $2.00 extra.

Membership:—All the members of state associations are eligible for membership in the National Association on certificate signed by the officers of his association.

Make this a part of your vacation trip. A royal time is assured you. For information address Local Committee of Arrangements, National Dental Association, 718 Schofield Bldg., Cleveland, Ohio.

FOREIGN DENTAL LAWS.

(Prepared by Alphonso Irwin, D. D. S.)

We present herewith five countries which require a medical training in order to secure a license to practice dentistry. It behooves each dentist of the states to consider well whether he wants any regulations of the following kind, under medical supervision, governing the practice of dentistry. During April, 1911, we received the license requirements and laws from the Argentine Republic, France, The Balkan States, including Bulgaria, Roumania and Servia. These enactments contain the legal features deemed most desirable in each country at the present time, to correspond with the advanced ideas in the professions and the needs of the public.

Argentine Republic.

The most noticeable characteristics of the Argentine Republic requirements are that:

1. Physicians, pharmacists, dentists and midwives are included together, under the provisions of the same law.

2. (a) United States deplomas must be legalized by the Department of State at Washington, D. C.

(b) The legalization of the signatures and seal should be on the diploma itself, or attached to same by a ribbon under seal.

(c) Diplomas must be vised by the Argentine minister or the Argentine consul for the state where the diploma is issued.

(d) The diploma must be translated into the Spanish language by a public translator of the Argentine Republic.

(e) The diploma must be legalized by the Argentine Minister of Public Instruction and the Minister of Foreign Affairs.

(f) The diploma should be presented to the Matriculation Board of the University faculty who give the applicant the necessary information as to all the premilinary steps for entering upon the course of studies.

(g) The curriculum for the revalidation of a diploma is the same as for students of the University. The fee for revalidation is 350c or $148.61 in United States currency.

A. The examinations must be progressive, i. e., the full course from the lower to the higher studies.

B. In case of failure of the applicant to pass, he can apply later for a re-examination.

G. The time for the examinations are the months of March, July and December.

France.

Five Years' Course Required to Obtain Degree.

1. The most salient features of the latest French dental enactments are the raising of the standards of the requirements.

2. The American dentist who desires to locate in France will find the requirements of the new law which go into effect in November, 1911, much more difficult than formerly.

3. Requirements of the New Law: The course of study leading to the degree of dental surgeon in France now requires five years divided into two periods, the "stage" (two years of probationary work in a dentist's office or a laboratory of a dental college), and three years of actual attendance at a recognized dental college. The applicant must produce for his initial enrollment evidence of having completed at least a common school course. The conditions of admitting women are somewhat more strict.

4. "At the end of the second year of the 'stage' the student must submit to an examination of validation, which comprise first, the execution of a design reproducing the scheme of the exterior form and structure of one of several teeth; second, a practical test in modeling reproducing in wax plaster, wood, or ivory, several teeth of the mouth; third, making an artificial denture (the execution of a device including metallic part stamped and soldered); fourth, questions on physics, chemistry, mechanics and metallurgy as applied to the dental art, an oral test of half an hour is also given."

5. "The second period of the course is known as the 'scolarite,' requires three years, and includes in brief the following branches. First year elements of Anatomy, Physiology and Bacteriology, Asepsis and Antisepsis, Complete Anatomy of the Teeth, Their Development and Articulation With the Maxillaries; also Operative and Mechanical Dentistry. Second year, Elements of Medical Dentistry, Ausculation of the Heart; Odontology and Hygiene of the Mouth. The work of the second year is completed with practical exercises in dental operations, and mechanical dentistry as well as practical work in different phases of dental art."

6. Examinations: "A candidate for the degree of dental surgeon must successfully pass three examinations, one at the end of each school year, covering the work done during that period. The French diploma of dental surgeon is issued by the Faculty of Medicine of Paris, Lyon, Bordeaux, and Nancy. Proper credit on the examination is given for work done in hospitals under the supervision of the faculty. Graduate dentists from foreign countries desiring to practice in France are required to pass the examinations prescribed in the decree. They may obtain a total release from the "stage" and a partial release from the "scolarite" course upon the recommendation of the consulting board of public instruction, which bases its decisions largely upon the candidate's credentials and scholastic attainments. Dental surgeons are obliged to register at the prefecture, and at the record office of the civil tribunal of their arrondisement within a month after their establishment in business.

6. "Infractions of the dental laws are subject to criminal prosecution. The illegal practice of dentistry is punishable by a fine of 1,000 to 2,000 francs (a franc—19.3 U. S. cents), and 3,000 francs for the second offense, together with an imprisonment of six months to one year. Failure to register one's diploma is punishable by a fine of 25 to 100 francs. The court may also deprive an offender, temporarily or permanently of the right to practice his profession. This applies to foreigners as well."

7. Foreign Dentists: "Foreign dental students and those desiring to practice dentistry in France are subjected to the same requirements as

native students and practitioners; furthermore, unless they are competent (versed) in the language of this country they are placed at a great disadvantage in taking the entrance examinations and pursuing the course prescribed, as all examinations are given, and all questions must be answered in French. Hence, knowledge of French seems absolutely essential to obtain a dental diploma. State diplomas authorizing the holder to practice anywehere in France or its colonies are conferred upon the successful completion of studies in any of the dental colleges of France."

8. Partial Releases. "While a graduate of a foreign dental college of the required standard, upon the presentation of his diploma, before the proper authorities, is not prohibited from practicing as an assistant on commission in the office of a fully authorized dentist, yet he cannot practice under his own name until he shall have procured a state diploma. The new law permits of the total release from the "stage," the two-year period of probationary work, as well as partial release from the "scolarite" or three-year course in a dental college, upon presentation to the superior board of public instruction of excellent credentials in the way of college degrees, doctor's diplomas, or a dental diploma, but the securing of a dispensation is a slow, tedious process, and requires the payment of numerous large fees. American dentists contemplating coming to Paris to practice should not fail to have their dental diploma vised by the nearest French consul and provide themselves with all credentials possible. It will aid them."

Releases: In securing releases, the applicant for a partial release must produce evidence of having completed three years' work in a dental college. In no case will a diploma be granted unless the last year's work has been done in the school issuing a diploma.

Addenda.

"There are present in Paris a number of graduates of American dental colleges employed in dental offices on a commission or salary and at the same time pursuing courses in local schools, thus preparing themselves for the examinations and for ultimate admission to practice under their own names."

Dental Licensure, Under Medical Espionage.

The dentists of the United States and particularly those of the states of Virginia and New Jersey can obtain a fair idea of the character of continental dental licensure under Medical Laws from the Balkan States. Roumania and Servia require the applicant to possess the title of M. D.

Bulgaria: "The Bulgarian government has stated in a communication that according to Article 120 of the Law on Public Health in Bulgaria, any person who has successfully completed the course of a dental school and who desires to acquire the right to practice the profession of dentistry in the Kingdom must pass an examination, called the 'Colloquim' and that only Bulgarian subjects are admitted to the said 'Colloquim'."

Roumania.

The dentist in Roumania applies for a license to practice dentistry under the Roumanian Sanitary laws.

These laws attract particular attention because Physicians, Dentists, Veterinarians, Pharmacists and Midwives licensure is provided for under the same laws.

Extracts from Article 82:

"The authority of the Minister of the Interior, published in the official Monitor is necessary."

Right to practice the above professions is given to:

Possessors of Academic degrees granted by schools in Roumania.

Degrees and diplomas bestowed by foreign faculties upon Roumanian citizens.

C. "Similar rights are granted to persons born in the country (not citizens), who have received their secondary education in Roumania.

D. "Persons possessing foreign diplomas, must, in order to obtain the right to practice, first pass an examination.

"Only those persons who hold diplomas deemed equivalent to those provided for according to the law on instruction, are admitted to take the examination, giving the right to practice."

4. "The examination for the right to practice is conducted by the general board of the sanitary service, under the supervision of a jury composed as follows:

D. "For dentists, of two members being surgeons of the Superior Sanitary Council, and one dentist named by the Sanitary Board."

Roumania 5. "Candidates for the examination must pay the taxes pertaining thereto."

G. "Doctors of Medicine, Veterinary Surgeons and Pharmacists three hundred lei (Francs) (about 57 90-100 U. S. coin)."

H. "A special regulation will determine the matter of holding such examination and the distribution of taxes."

5. "Article 83. Dentistry, as is the case with any other specialty of medical practice, cannot be practiced by persons other than doctors of medicine, having the right to practice, having obtained such right, according to the terms of this law, and having a diploma or a certificate which confers the right to practice dentistry in this country."

"Dentists without the degree of Doctor of Medicine, but who have studied their specialty in a school of dentistry, and who have been engaged in the practice of dentistry four years prior to the time of the promulgation of this law, shall continue to have such right to practice. All those who have obtained the right to practice under previous legislation shall continue to enjoy the right to practice."

"Persons without academic degrees, and designated as "dental mechanics" will only be allowed to work in connection with doctors and dentists, who practice according to the terms of this law."

AMERICANS TAKE NOTICE

Roumania.

Art. 33 Cont.—Secret Partnerships.

The formation of a partnership by which such a person "dental mechanic" places himself under the protection of a doctor of medicine who does not practice dentistry, for the purpose of thus practicing in an illegal manner, this specialty of medicine, is considered as a violation of the law, and the offender will be prosecuted."

"A doctor who is proven to have conveyed to another by such a secret understanding a right which, according to the law is absolutely personal shall be subjected to a fine of from two hundred to two thousand lei (francs), and the person who has profited by such a right, which the law does not recognize as belonging to him, shall be considered as practicing medicine illicitly, and shall be prosecuted according to the terms of Art. 88."

Servia.

"According to the terms of Art. 9 of the law regarding the organization of the Sanitary Service and the maintenance of the Public Health it is provided."

1. "All doctors, surgeons, etc., including doctors of dentistry, desiring to obtain the right to practice their profession in Servia or to enter the service of the state or communes, are required to be Servian nationals, to have a

diploma as a doctor of medicine, or some other certificate of equal value, to submit to an assistant physician in a hospital of the state designated by the Ministry of the Interior. Those that pass the examination receive the right to practice in Servia and to enter the service of the state in case of necessity."

2. "Those that serve their time in Military Hospitals are considered as having passed such time in the State Hospitals. Those that prove that they have passed a year in a clinic after they have received their doctors' degree are in a like manner considered as having passed their time in a state hospital. Recognized specialists who may have been admitted to the service of the state upon the proposal of the Grand Council for (public) Health, are exempted from any examination."

3. "The regulations regarding the official examination determined the Minister of the Interior acting in accord with the Grand Council for (public) Health. "Dental surgeons are not recognized in Servia if they have not also become doctors of medicine." Alphonso Irwin, D. D. S.

THE ILLINOIS STATE DENTAL SOCIETY

This society held its forty-seventh annual meeting at Peoria, May 9-12, 1911.

The following officers were elected for the ensuing year: President, C. C. Corbett, Edwardsville; vice-president, J. P. Luthringer, Peoria; secretary, J. F. F. Waltz, Decatur; treasurer, T. P. Donelan, Springfield; librarian, A. Don Stocker, Alton.

The 1912 meeting will be held at Springfield, May 14, 15, 16, 17, 1912.

J. F. F. Waltz, Secretary.

DENTAL COLLEGE COMMENCEMENTS.

TEXAS DENTAL COLLEGE

GRADUATES: W. E. Ames, F. W. Buchel, A. F. Cruse, A. B. Carter, T. R. Dickerson, J. R. Harmon, V. E. Hill, C. C. McIntyre, L. C. Pope, W. W. Reese, C. S. Schoverling, W. L. Sandel, P. T. Vieweger, B. A. Wiedemann, W. J. Wilson, K. Watkins, E. C. Warren.

IN MEMORIAM.

Dr. Hugh M. Reid.

It has not been the privilege of many dentists to continue in active practice where they could watch the progress and assist in the development of modern dentistry as did Dr. Reid, who for more than a half century made it his life work to practice and to teach dentistry. He was born in 1836, and studied at Ohio Dental College. In 1857, when only 21 years of age, he began practice in Green Castle, Indiana. Later he practiced for ten years at Cedarville, Ohio. In 1870 he moved to Cincinnati where he practiced for eleven years, during which time he taught five years in the Ohio Dental College. In 1881 he came to Minneapolis where he practiced until 1896, at which time he began teaching in the Dental Department of the University of Minnesota, devoting his whole time until June, 1908, when he retired to spend the remainder of his life on his farm at Eatontown, New Jersey, where he died March 3d, 1911, in his 75th year. Dr. Reid was a man of large physique, full of energy and crowned with a countenance beaming with kindness and good will, which always brought noble inspirations to those with whom he came in contact. He will long be remembered by the students of the college during the fourteen years of his teaching, who were accustomed to call him "Daddy." His kindly and helpful interest in all the boys, his ability as an instructor and a strong personality endeared him to the students, and as they visited the college in after years, it was always "Daddy's" office they sought to renew their college days. Dr. Reid helped to organize the Minnesota State Dental Association, and was a charter member and treasurer until he removed to New Jersey in 1908, there to retire after fifty-one years of continuous work in dentistry. He is survived by his four children and a goodly group of grand and great grand children. Committee—Oscar A. Weiss, D. D. S., Chairman; Wm. F. Lasby, B. A., D. D. S.; Norman J. Cox, B. A., D. D. S.

THE

DENTAL REVIEW.

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PYORRHEA ALVEOLARIS, ETIOLOGY AND INSTRUMENTATION.*

BY JOHN D. PATTERSON, D. D. S., KANSAS CITY, MO.

In response to the invitation of your programme committee, I come before you tonight to speak upon a subject in which I am greatly interested. I come, I assure you, with much diffidence, for I realize my inability to put before you in the strongest and most convincing way what is in my mind; and ask you to believe that it is only from a sense of professional obligation and duty that I am here to address you upon the subject at all. I come because I am convinced, and this conviction grows stronger with more extended observation—that the subject of "Pyorrhea Alveolaris" has by so many writers been theorized about, and its etiology attributed to nearly every physical or mental bodily condition or environment, that the average practitioner or student is lost and confused amid a labyrinth of uncertainty and speculation, and that, in the meanwhile those who look to us for relief too often go sufferingly on, and our useful profession is in the critics' hands on account of a variance of opinion so radical, and which I think is often "as vulnerable as the paper helm and card cuirass and pasteboard make believe of childhood." I am therefore before you tonight to give evidence against the speculative and show some of the harm it has done. In my teaching I am constantly hampered with interrogations from the best informed of the students by questions such as the following: "Our textbook tells us that pyorrhea is caused by the uric acid diathesis," and that the initial irritation is a deposit on the root near the apical end. How about it?

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*Read before the Chicago Dental Society February 21, 1911.

Another says, "In diabetic patients we are told in the *"Cosmos"* not to do surgical treatment until the diabetic condition is under control. How shall you harmonize this with your teaching to at once surgically remove all irritants whatever systemic condition may be present?" Again, "Is the syphilitic condition nearly always present as claimed by some?" Again, "Is pyorrhea the result of auto-toxaemia." These questions and others of like nature are not only asked by students and by practitioners but by patients. They every day have these various expressions and others to make. "My dentist says I have uric acid and my pyorrhea is incurable." "My physician recommends the vaccine treatment, shall I take his advice? He says the local treatment is painful and is of no avail without the opsonic treatment." "Can you assure me of a cure? If not, I will not undergo the surgical treatment."

The noising abroad (in these days of prophylaxis), of such an array of opinions with wide differences has naturally resulted in a condition which has prejudiced members of the profession, because it has justified their unprofessional attitude of non-interference in this disease, given unrest to the student—and to the patient a doubt of the efficacy of *any* treatment. If I can correct or change this in the mind of a single person here tonight I will be recompensed.

I think that the best way to introduce, or rather to reproduce my belief as to the salient points causative of pyorrhea alveolaris will be to clearly outline such opinion. I believe that "any irritant of whatever nature which impairs the integrity and continuity of the gingival gum margin may cause pyorrhea, and that without this impairment the condition will not be established, and that without local irritation, systemic conditions or a constitutional diathesis do not destroy the integrity of that gingival border."

In making this statement I am quite aware of the fact that predispositions causing departure from perfectly normal physiological function from whatever cause, hereditary or acquired, must control or influence the course of this disease as well as other conditions and diseases of similar character such as catarrh (and pyorrhrea alveolaris is truly a catarrh) and that these predisposing conditions should receive careful attention and correction. Yet I affirm, with all the earnestness I can command, that let the systemic conditions be whatever they may, the gingival border is not deprived of its normal attachment about the cervix of a tooth and placed in a pathological condition from systemic causes alone; and that there is always present local irritation in one or the other of its manifold forms.

I know how easy it is to formulate individual opinions. I know as Dr. Atkinson said long ago, "It is simple to find corroborative evidence when you want to prove anything and not to find what is opposed to it." But I think you must credit your essayist with being too much in earnest to make statements without somewhat of logic or without experience; and without the logic and experience of others.

I do admire, and give the greatest meed of praise, to the men who have painstakingly delved into experimentation and research into the beginnings of pyorrhea as well as all other diseases; who have from time immemorial waged war against the inroads upon human life and comfort, who have battled against subtle forms for the good of humanity. I know that eyes once bright have, in this work, grown dim. I know they have sleeplessly wasted physical strength in the air of the laboratory, and mayhaps finally succumbed —martyrs to personal desire without reward; or a single desire to better and relieve humanity. Yet, I think we must all realize that scientists in the pathological realm are often prone to the speculative. So, I believe the scientists in dentistry who assert that the beginnings of pyorrhea can be traced to the same source as arthritism, or that on account of disuse or nutritional fault the whole dental arch and its arterial supply is degenerate, that it is the result of syphilitic taint—of specific bacterial invasions—of climatic environments, or of starch poisoning have fallen into a common error of those who only look through the small end of a microscope and neglect the plain readings of local traumatism, of cause and effect.

To the writer the etiology of pyorrhea may be briefly described as follows: The irritation which may dissolve the continuity of the gingival border may be presented in various forms. "The precipitation of the calcareous salts from the saliva upon the necks of the teeth which is combined with mucus and food remains and augmented by irregularity, is the usual form of irritation. Next in importance may be classed the nests of fermentation and putrefaction about the gingival border and inter-proximal spaces; again, mouth-breathing dries the delicate border, and thus function is interfered with; and in all these irritations we have the protective reaction of inflammation against a common enemy—irritation. Other irritations may also be mentioned, and include most prominently, banded crowns, careless use of ligatures, the use of wedges, the presence of cavities holding food matter and which is wedged in the process of mastication into the interproximal spaces; also careless operative procedures. It is the firm opinion of the writer, however, that calcic deposits from the salivary secretions combined with food detritus, the nests of fermentation and putrefaction, the changes caused in the mucous membranes by mouth-breathing, the unnatural cervical tooth surface formed by banded crowns, and proximal decay, must be considered the primal and usual causes of interference with and destruction of the relation of the gingival margin of the gum with the cervix of the tooth. The lesion of the gingival border is a result of *continued* (*generally long-continued* and persistent) irritation, such as is found under conditions above stated; and the factor of causation found in wedging, ligaturing, and other temporary interference with the gingival border consequent on operative procedures, can scarcely be cited as active causes for the establishment of pyorrhea alveolaris. In summing up the positive and possible causative factors in producing this disease, the writer's close observation of hundreds of cases confirms the statement that less than five per cent have other origin than that

When the first stages of the disease are established by a solution of the integrity of the gingival border from any one of the causes stated, the disease will progress, slowly or with rapid steps, until the tooth is eventually lost. The rapidity of the course of the disease will depend upon the amount of local irritation and the predisposition present; but without hygienic care, remedial measures, or surgical interference, it remains in the majority of cases but a question of time when the tooth investment will be entirely lost and the affected organ exfoliated.

In dealing with the subject of the etiology of pyorrhea, it is the choice of nearly all writers to differentiate, and divide the diseases of the peridental membrane into two or three classes or stages, endeavoring to support the claim that the different stages have separate and distinct etiology and pathology. If there are distinctive and separate causes for the various classes, well and good, but if, as the writer believes, there is no establishment of this disease in any of the so-called classes that does not begin with an inflammation of the gingivae, it surely can be argued, and justly—that there is little logic in selecting a nomenclature which pre-supposes an etiology in the second, third or fourth stage, different from that of the first stage. Let us say that the destruction of the investment of the tooth always begins with gingivitis and the subsequent stages from the time pus formation is observed can correctly be described as pyorrhea, simple or primary, and acute destructive or chronic, or let us follow the nomenclature in which catarrh is described, viz., serous catarrh, muco-purulent, purulent and chronic. (In passing, allow us to direct your attention again to the identity of catarrh and pyorrhea.)

With the initial lesion and the inflammation of the gingival border there is at once established the condition found in all inflamed territory—viz., the exudation of the contents of the nutritive vehicles, which with the presence of micro-organisms eventually introduces the breaking up of the exuded vessel contents and the adjacent tissue into pus. There rarely is found an exudation which does not soon exhibit suppurative processes. This condition in which exudates and pus are exhibited gives rise to the precipitation of the calcic matter which is invariably present in all exudations, and is deposited wherever a convenient bursa for its reception is afforded. The explanation of the source of the serumal or sanguinary points and plaques found in pyorrhea is the simple and reasonable one, that in all inflammatory conditions there are exudations, and whether they are simple serum, as in the first stages, or pus, as in the later suppurative stages, there is in this matter calcium phosphate, calcium carbonate and magnesium phosphate, and in the changed environment caused by functional disturbance these salts are precipitated, and thus form an irritant to the tissue about which it is deposited, inciting by its impact or touch, inflammation of soft tissue and absorption of bony tissue until the tooth organ is exfoliated. The serumal deposits in pyorrhea are subsequent to the initial inflammation, and are directly from the inflammatory products.

The inflammatory process established with the precipitation of serumal calculus from inflammatory products, the continuation of the disease goes on to the breaking down of tissue, from the impact or touch—the mechanical irritation; and this force is supplemented by the presence of pyogenic bacteria, which in their life processes cause toxins, purulency and suppuration, which by gravitation and capillary attraction, infect and destroy the tooth investment. Soon there is noticed at certain points pockets of increased depth, and they indicate their presence upon the gum by a reddish or purple line. Now the tooth often commences to change its position. It elongates, protrudes, or rotates—drawn by the remaining normal attachments, or by the protective reaction of tissues which seek to rid the economy of a diseased member. This looseness, and the consequent malocclusion, is also an irritant factor. These conditions soon cause a more profuse formation of pus from about the diseased teeth, which exudes about the teeth, and in deep constricted pockets the pus at times finds its way through the tissue at the lower point of the pocket and the abscessed condition points as in ordinary alveolar abscess.

When the disease reaches the apical territory, the nutritive vessels to the pulp frequently are deprived of their function, and the pulp takes on a pathological condition which results in its death; and so is added the additional irritation of common alveolar abscess. If the condition of pyorrhea is of long continuance, the root of the tooth in some cases is found to be attacked and absorbed in spots at the focus of inflammation. This has been noticed without the complication of the death of the pulp, though more frequently when the disorganized pulp tissue assists in the irritation. The giant cells often present in continued inflammatory territory in their strenuous attempt to protect tissues are found to destroy them.

The above related conditions continuing unalleviated, the entire attachment of the tooth becomes diseased and obliterated and the organ is exfoliated.

Constitutional and systemic conditions are militant factors in the course of this disease. In the opinion of the writer, however, acquired systemic conditions have lesser effect than has tissue character, which is handed down from generation to generation. All pathologists acknowledge that (Stengel) "the degree of resistance to irritants differs in different individuals. In some the degree of resistance may be so great that certain diseases are never contracted. In other persons there is a recognizable weakness of resistance in one direction or another which constitutes a definite predisposition."

It can be, and is proved, that tissue varies greatly. Just what that inherent difference is, is most difficult to determine. The cell, through some peculiarity of the original germ plasm—in some component—chemical activity—or ability—is somewhat dormant.

In Green's Pathology we read that

"Certain substances in the blood and tissue which constitute the array of defense are at times less active and perhaps largely absent."

McFarland says:

"Hereditary tendencies or predispositions may depend upon transmitted physiologic peculiarities, or may be nothing more than the result of lack of vigor of the germ plasm."

Adami says upon this point:

"It is certain that the life of cells resist the action of injurious agents and that this power of resistance varies both in the cases of different tissues as well as in individuals—nor does this power necessarily go with muscular strength."

In the diseases under consideration, it is well known that a slight irritant in a given case produces distressing inflammation, and that in another case with the same amount of irritation the mucous membrane is not in the least prejudiced. A small point of calcic deposit which encroaches upon the gingival border at the cervix of a tooth will in one case produce pain and inflammation, and in another, larger amounts of calculus are scarcely appreciable to the patient.

The difference is logically found in different degrees of resistance in tissue, and thus is scientifically explained why we see pyorrhea running rampant in members of the same family, for it is because there has been bequeathed to them from progenitors, the character of tissue that falls an easy prey to certain irritants, and let it be kept in mind at the same time that it does not argue that such familiae characteristic is a sign of depraved physical condition vindicative of general weakness or short life of the individual, for as Prof. Green says: "This lack of power does not always go with a lack of muscular strength."

I am, in the etiology of pyorrhea, therefore, supporting the view that the chiefest factor is local irritation and that the most potent predisposition is found in hereditary weakness of resistance in tissue, and that the acquired predispositions of such as originate in nutritional disturbance and faulty metabolism, while they must influence the destructiveness of pyorrhea and all diseases of a like nature, such influence is only secondary to local irritation and tissue character and does not originate the disease in any case. Let us now notice some of the statements made by those claiming systemic causation.

In the American text book of Operative Dentistry, edited by Dr. Kirk, we find the following on page 503:

"Pyorrhea of constitutional origin, which is the most destructive form—primarily begins as a local inflammation in tissues on the side of the root near the apical extremity, and secondarily advances in the very large majority of cases toward the gingival border. It is a local expression of the gouty diathesis, and directly dependent on the deposition of imperfectly oxidized waste products of the nutritional process such as uric acid and urates together with calcium salts, upon the pericemental membrane."

Dr. E. C. Kirk, the editor, says:

"The acid end products of nitrogenous metabolism are known to have a predilection for the articular tissues, and the dental ligament, the pericemental membrane, does not escape. Deposition of the irritative suboxidized waste products of nitrogenous metabolism are deposited in this membrane causing irritations of various degrees, even necrobiosis, and establishing local points of diminished resistance, which later become foci of infection through their invasion by pus-producing bacteria; in short, we have a form of alveolar pyorrhea which is a terminal infection to a chronic general nutritional disorder, arthritism."

There are many others who hold to systemic causation, but the general basis upon which they rest their belief is substantially stated from the two extracts above copied from Drs. Kirk and Pierce.

Dr. Talbot says *Cosmos,* 1910, page 97:

"The inflammation is as liable to commence absorption of the alveolar process from irritation in arteries, midway or at the apical end of the root as to commence at the gingival margin of the gum tissue." And this he says occurs on account of lack of use, and degeneration of alveolar process, shortening of the jaws, lessening of the number of teeth, change in their form. The blood supply is not so great. The alveolar process he says, may "be called a transitory structure."

These men, without exception, are obscessed with the belief that those who suffer from "true pyorrhea" are "individuals below the normal standard of health," and they agree and insist that in many cases the loss of the teeth is seen without local irritation or the presence of calcic irritation, pus or inflammation.

Dr. Johnson, commenting upon the latter condition says: DENTAL REVIEW, May, 1910:

"This leads us to the consideration of another condition which is frequently met and in which there is really very little hope of saving the teeth or accomplishing much in the way of treatment. In all other cases, however bad the condition, something can be accomplished at least temporarily, but in these cases there seems to be absolutely nothing to be done. This refers to those cases in which there is a pronounced loosening of the teeth without the presence of pus or of any apparent irritation around the roots. In many instances the gum is a perfectly normal color and very little, if any, soreness is manifested. There is no calculus on the tooth and frequently we find no pocket and the gum attached quite firmly to the entire circumference of the root. It appears to be purely an absorption of the alveolar process around the root without any external irritation. The bony support being gone, it is folly to lacerate and break up the tissues surrounding the root with the hope of stimulating new growth, because if they were lacerated sufficiently the tooth would fall out. Eventually, when the tooth grows too loose, the constant movement develops a soreness which necessitates its removal. In some of these cases when the tooth is extracted it brings with it a mass of soft tissue strongly adherent to it, in others the movement of the tooth breaks up the attachment and the tooth simply falls out of its own accord, leaving a hole in the gum and causing almost no bleeding."

Dr. Buckley also says:

"In 'true pyorrhea' there is as a rule no gingivitis interstitial or otherwise, the gum in fact is rather anemic, the pericemental membrane is being rapidly destroyed—alveolar process resorbed, virtually melting away—pockets deep and variously located. Hard deposits may or may not be present. There is a progressive loosening of the teeth and unless the disease is checked the teeth ultimately drop out."

Dr. Johnson again says:

"Gentlemen, I am absolutely convinced that there are very many cases of loosening of the teeth that the dentist has no more control of than a bird flying in the air. There is something fundamental and constitutional behind some of these cases, in face of which the dentist is absolutely helpless."

Now, respecting the claims made by Dr. Pierce and Dr. Kirk, there is this to be said:

It is granted at once that in the gouty diathesis and in the conditions arising from faulty metabolism, the waste products are sometimes deposited in the movable joints where opportunity is afforded for such precipitation, but the union between the pericemental membrane and the cementum of the tooth affords no such space until some precedent lesion exists. The "joint," if we may so call it, has very little similarity with other joints which are the classic seats of gouty deposits. The pericemental membrane is thickly studded with cementoblasts and osteoblasts and is in no wise analagous to the ordinary ligamentous connective tissue with its synovial lubricant. In short, there is no such space for such deposition, that such deposition is made here because the vessels are loaded with waste products must be purely speculative. The only joint composed of tissue in which disease of malnutrition or auto-intoxication might cause deposit is the joint articulating the inferior with the superior maxillary, the temporo maxillary joint. The diagram in the American text-book of Operative Dentistry, where is depicted a patch of calcic deposit near the apical end of the root where attachments towards the tooth's crown still are normal is, I think, a pure fiction of the imagination so far as such deposit being the primary start of pyorrhea.

Dr. Talbot's statement can only be true in the slightest degree in a very limited class of cases, and even then, as I have before stated, the deposit at the apical end of the root must be subsequent to previous lesion which has destroyed the anatomical and physiological relationship.

We come now to the assertion that only those in abnormal health suffer from pyorrhea.

My continued clinical experience leads me again to say what I have often stated, that the large majority of those who appeal to me for relief from pyorrhea are *remarkably healthy and vigorous* and careful study and observation brings me to the belief that *"No greater a per cent of patients suffering from pyorrhea have systemic predisposition than an equal number who come for the ordinary operations of filling teeth."*

It is entirely incomprehensible to the writer how it is possible that condition and environment might justify such a radical statement and find support in clinical observation, as that those suffering from pyorrhea are those below the normal in health. In the east, as in the west, or in the middle west, it is confidently believed the causes of pyorrhea vary very little, and there must be discrepancy or incorrect readings of clinical observation. The remark that usually patients in 85 per cent of cases are in vigorous health, is met with by the query: "How do you so determine?" There are many suffering from faulty nutrition when such condition is not noticed or even known to the patient." That is true—but a general systemic condition so advanced as to cause the patient to suffer from the deposition of waste products would scarcely be present without being observed by both patient and physician. So far as I am personally interested the statement that only about 15 per cent of pyorrhea patients have systemic infirmity, is made very advisedly after treating hundreds of cases during the last forty years. In this statement I am supported, I think, by the majority of operators who see a great number of cases and who are not contending for systemic first causes. Finally, what of the cases where it is said the dentist is "absolutely helpless," where there is no "evident" irritation, "no calculus on the root"—"the gum attached quite firmly to the entire circumference of the root," "alveolar process melting away," "pericemental tissue being rapidly destroyed"—cases of which it is said:

"There is something fundamental and constitutional behind some of these cases in which the dentist is absolutely helpless."

I confess at once that I have had no such cases presented in my practice. If there is something fundamental and constitutional causing this condition it is high time such cause is found. From the days of Magitot or even long before that time, investigators claiming constitutional cause for pyorrhea have been trying to find it—they have not done so—they have harrowed the field from A. to Z. and the result at present is the same as in the long investigations for the cause of catarrh, i. e., *some form of local irritation.*

I have said that I have not seen a case of loss of the teeth from a melting away of their investments "without the presence of pus or apparent irritation around the roots," at one time or another. I will gladly make a trip to Chicago to observe such a case.

I have noticed cases where, on account of preceding operative procedure, which had been imperfectly done, the gum was reattached to the neck of the tooth and yet the inflammation going on nearer the apex when the irritants had not been removed.

I have seen, in cases of long standing, roots comparatively free from deposits but upon close examination would be discovered cactus-like individual concretions which are no doubt just as irritable as larger plaques of deposit. I know, also, that patients may, by extraordinary care and vigorous brushing, keep deposits, pus and inflammation, in the background. I know also, that an apparent absence of calcic matter may be due to the excursion of inflammatory products, and that the osteo-clasts found in long continued inflammations may absorb and remove deposits just as they sometimes do the roots themselves, but I have never yet observed one of these roots but what exhibited upon close examination, a roughness from deposits or from root indentation and bathed in purulency, a condition irritable to soft tissue and bone tissue alike, and accompanied by inflammation. Nor have I ever observed a single case of this description which would not respond to the usual surgical care if enough of normal tissue remained upon other root territory.

Appreciating the anatomy and physiology of the parts involved, and thoroughly convinced of the average persistency toward life and nutrition, instead of death and destruction, I should argue that a systemic condition bad enough to melt away the alveolar process and let the tooth drop out "of its own accord" would naturally melt awy the whole physical being and leave nothing for the undertaker to put in the box.

In the condition then, seen by some observers, of absence of irritation and rapid absorption, I would unhesitatingly say that the disease has been of long standing and that in the earlier stages the usual irritations would have been observed. They have disappeared as before mentioned, or mayhaps in some additional way not known to us, and the "anemic condition of the gum," so often referred to, is the result of partially morbid tissue from pre-existing acute inflammation, with function destroyed, and through free drainage, left flaccid and lifeless.

In concluding, those who still seek for the etiology of pyorrhea in obscure systemic conditions and look for some "sweet oblivious antidote" to mark an easy way to relief, should return to the plain and provable logic of cause and effect, and forsake the speculative and unreliable.

The attitude of prominent members of our profession in relegating the cause of pyorrhea to the obscure and systemic, has, I know, from daily experience, justified many operators in the policy of non-interference and consequently resulted in the loss of dental organs, prejudicing the health and comfort of patients, and subjecting the profession to criticism of its efficiency.

The whole healing art in medicine, in surgery and all of its specialties, is to remove from the field every form of irritant which stands as an obstacle to physical resources and to proper functioning, and it is also true that each year adds to the testimony that such conditions as found in pyorrhea result usually from local irritation and local infection.

Let us heed the lesson.

In the division of the subject for this evening I have also been given "Instrumentation." I have already occupied too much of your time. I will therefore be very brief and say:

After all hopeless teeth are removed, and the class embracing those next to hopeless made stable, after preliminary sanitation and obtunding, the instrumentation comes, and it may be at once said that the instrument which will accomplish the work of removing all deposits and irritant matter from the root, leave it smooth so that repair tissue will form about it, and do this with the least mutilation of the soft tissue, is the instrument to be advised. In all operations involving the gingival tissue it is extremely important that the rope-like border surrounding the cervix of the tooth be not severed or mutilated, on account of the fact that with serious lesion it recovers slowly and is seldom reproduced like the original. So the instruments must be of a form, strength, delicacy and effectiveness not perhaps demanded for any other operation in dental surgery.

In detail I will not burden you with instrumentation, but only notice one or two points. It is claimed by good men that instrumentation should embrace curetting the absorbed process borders surrounding the pockets. Whether this is essential I do not know. I have not practiced it unless pulp involvement and abscess supervened.

I know that " new tissue will not grow upon dead tissue," and that broken nutrient continuity must have protection against anything inimical to the establishment of embryonic tissue—but experience has taught me that in the surgery of removing irritants from the roots and vigorous irrigation, the process edge is sufficiently touched and stimulated, and that the dead edge of the process will at once be thrown off, and the painful curetting advised by some may be dispensed with.

One more point. Dr. Hartzell strongly advises to leave the peridental tissue intact if possible. I fear that would lead to an imperfect cleansing and smoothing of the diseased surfaces from foreign matter. Of course, no one should plane and dig into the root after irritants are removed and it requires, I think, skill and long experience to know when to stop, but in long standing disease, my experience is that no pericemental tissue remains, and therefore no danger is present of its removal. In incipient disease I think Dr. Hartzell's advice is wise and the careful proof he has adduced appeals to our consideration.

I thank you.

PROPHYLAXIS IN RELATION TO THE DISEASE KNOWN AS PYORRHEA ALVEOLARIS.*

BY CYRUS M. WRIGHT, D. D. S., CINCINNATI, OHIO.

Every one knows that this disease of the gums and sockets of the teeth which we call "Pyorrhea" is incorrectly named, and yet the popular misnomer is almost universally used by medical and dental writers in Europe and America.

Phagedenic perecementitis, interstitial gingivitis, periodontitis, pericementitis, alveolitis, and other descriptive names based on some specially observed pathologic phenomenon exhibited by the disease, are employed by different writers, in their efforts to correct the nomenclature, but no organized effort has been suggested for the adoption of a comprehensive and scientific name to take the place of the popular "Pyorrhea." I shall not stop to criticise, condemn or correct the fault, although I feel sure that much confusion now apparent in discussions of this disease, has its origin in the misnomer. The term "prophylaxis" is rapidly nearing the same danger line, by the daily and hourly misuse of the term by our writers and speakers, some of whom are specialists, devoting their entire practice to what they call "Prophylaxis."

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*Read before the Chicago Dental Society February 21, 1911.

Prophylaxis means the art of preventing disease, and is in no way associated with the art of curing. It is not Therapy. We read every month in our dental journals of prophylactic schemes for the curing of pyorrhea; of success in the curing, not only of primary, but of secondary stages or phases of pyorrhea by prophylaxis. "Prophylaxis" can only be employed on healthy tissues. It consists of measures or systems, for the treating of tissues *now* in a perfect physiologic condition, and before a sign of pathology has yet appeared.

Prophylaxis deals with health; Therapeutics deals with disease. Prophylaxis is not curative, but preventive. We can't cure a healthy tissue. Prophylaxis is anticipative, protective, and is simply the art of guarding against the approach of inflammation or disease. Inflammation is, in one sense, not a disease, but "Nature's fight against disease." It is a defensive reaction on the part of healthy tissues against injurious irritations from any and many causes; and each tissue reacts after its own individual method. Each living tissue must depend upon general systemic assistance when in distress, through neurons and the blood, just as it does upon these nerves and the blood for its continued life. If there were no sensory nerve terminals, in an organ, there would be no calls through relays of neurons, to the central ganglion, and consequently no response through motor neurons to the smooth muscle fibers of the middle coat of the arterioles, which carry blood and regulate its flow through the organ. No matter how violent or persistent an irritation may be in an organ, without this vital interdependence there could be no inflammation, no reaction, no regeneration of tissue, injured or destroyed by irritants. Inflammation then, is a benevolent natural process, but Nature does not always discriminate with precision, for, while inflammation is looked upon with favor by the surgeon, to repair the wounds which his knife or forceps has made, it is regarded by the physician as an unmitigated evil when it attacks with the same benevolent design, important and delicate organs of the body, like, for instance, the eye or lung.

The inflammatory disease of the gums and sockets of the teeth which it is our business to discuss at this meeting, affords ample evidence of an effort on the part of the general system, or let us say, rather, on the part of the complex organism, to fight the mechanical, chemical, bacterial or plasmic irritants which inflict the transitory structures which have been built around the roots of individual parts of an important organ, an organ intimately connected with a function evolved for the benefit of the entire organism, viz.: The mastication of its food. This food is delivered to every living cell in the body by the plasma through the middle-man, the lymph, and the products of Katabolism are carried away from each cell by the lymph and plasma.

The physiologist and pathologist never forget this fact. The therapeutist and the prophylactition must constantly bear in mind before the one attempts to cure, or the other to prevent a disease, that the plasma is an ever present factor in the environment of every living tissue of the body. Prophylaxis in relation to a future, threatening possible or probable pyorrhea, must always consider the plasma, as well as the extrinsic familiar and visible injuries. Abnormal plasma is the chief element in every disease, and notably is what we call, a predisposing cause, of this prevalent disease, which most of us are prone to consider a local affair. Pardon me if I digress for a moment, to say, that I cannot conceive of a purely "local" disease in a living tissue, whether that disease shows itself in a small area of nervous matter in the cortex of the brain, or in a few epithelial cells whose function is to manufacture a finger nail.

Pathologists generally agree that much the most common cause of degeneration of the cell, is some abnormality in respect to the plasma bathing it. Abnormalities of this kind fall under two heads: First, defects in the circulation of the plasma,—these may be central as in heart and lung disease; or local, as in embolism, and degeneration of the peripheral blood vessels. Sudden and pronounced interference with the local circulation leads to profound degenerative changes. More chronic defects of the circulation, as senile degeneration of the arteries, lead to gradual atrophy of the parenchyma of the tissues. A sluggish circulation causes damage to the capillary walls. Then, secondly, we have defects in the composition of the plasma. The plasma is the most complex fluid in nature. Our present refinement in chemical analyses has not been able to fully master the subject, for the plasma varies in so many ways, and from so many causes. It may vary in respect to its nutrient constituents, its ferments, its hormones, its opsonins, etc., and it may be poisoned by the results of morbid metabolism, as in diabetis; by bacterial toxins formed within the body; by the introduction into the body of a poison, such as lead, mercury or alcohol. Again, pathologists have shown us that the vast majority of non-traumatic diseases result from the action of a morbid plasma constantly bathing the tissue. Now, pyorrhea, is an inflammatory disease, and a toxic state of the plasma is much the most frequent cause of inflammation, and both in the consideration of its etiology which Dr. Patterson will take care of, at this meeting, and in the consideration of a logical prophylaxis in relation to this one disease, we cannot avoid recognition of this, which I shall call the plasmic environment of the tissues making the gums and sockets of the teeth.

While I have been specially warned by Dr. Bently to shinny on my own side and not to venture into the fields of etiology, pathology, prognosis and treatment, but to stick to the subject of prophylaxis in its relation to pyorrhea, I cannot but believe that prophylaxis to be direct, must be laid upon a thorough knowledge, first, of the pathology of the disease which we wish to prevent, and secondly, upon as complete a mastery of the etiology as Miller has given us in his monumental discovery of a method of producing Kunstliche caries, (artificial caries). Our coming master of prophylaxis in relation to pyorrhea, whoever he may be, must prove to us that he can, by definite methods, produce the disease in its various characteristic sequences, in a perfectly healthy gum and socket of a tooth. He is not simply to show a primary traumatic gingivitis, but a fully developed, undoubted, pathological condition of disease which our clearest investigators will accept as true pyorrhea alveolaris.

Can we do this today, with design, experimentally? Can we do this in a healthy gum tissue, by persistent local irritation, mechanically or chemically, when the parts are well nourished with normal plasma? Can we introduce infections from the mixed crowd of pathogenic bacteria? In other words, can we, by experiments, sow food debris, filth, bacterial lactic acid, sharp edges and inequalities in tooth crowns and bad positions, and surely reap pyorrhea alveolaris or phagedenic pericementitis, or interstitial gingivitis, that will pass muster as genuine cases of either of these phases of the real thing? Or, turning deliberately to the other side of the question, can we, by studied and careful selections of food so reduce the forming of healthy plasma that we can sharply mark the variations in its tissue feeding qualities? We can with certain drugs, like lead and mercury, produce pathological manifestations in the gingiva and pericementum, but we do not classify these definite phases of gum and socket disease, as pyorrhea alveolaris. Or again, can we succeed in producing this definite and prevalent disease, by a double series of experiments, internal in relation to the plasma, and external, by persistent irritation of the gingival borders? Is there a diabetic, a uric acid, an "enzymic," a trophic, a mental or a nervous method, of so changing the plasma which is sent to the gums and pericemental tissue cells that it will cause them to lose their innate energy of resistence to injuries, and make them degenerate and feeble? Have we any knowledge of a sure way of producing pyorrhea, as Miller did dental caries? If we have not, then our prophylaxis is based, not on modern methods—on physiology,—but on experience, the shaky and weak basis of the older practitioner of medicine. We know the story of the medical practice of the past, by the ridiculous and nauseous drugs in the prescriptions of some of the wisest of the medical practitioners of Harvey's times, or of a time when the science and art of medicine was not founded on physiology. Harvey's discovery of the circulation of the blood laid the first stone in the corner of the modern structure of medical science. And as knowledge of physiology has advanced, so has the science and art of medicine, but with a strong tendency to revert to the older theory of experience. At the present time all that we can do, is to depend upon what we believe to be general and oral hygiene; general, as regards diet, fresh air, exercise, bathing, and habits of living, of the organism in its struggle to accommodate itself in comfort, to its environment. Oral, in accordance with what the civilized world has decreed as proper and advisable for the health of the tissues of the mouth,—including frequent dental care on the part of a trained modern and scientific profession, and cleanliness of the oral cavity and teeth, maintained by well advised personal efforts. The tooth brush is the constant companion of civilized man, and yet Dr. Clowes, of New York, a celebrated dentist, with an elite clientele in that city, said fifty years ago, "If I were called to a court of justice and asked the question, 'Does the tooth brush do more good than harm,' I should raise my hand, and answer, 'It does more harm than good to the teeth of civilized man.'" Today such men as Rhein, of New York; Fletcher, of Cincinnati; Barnes, of Cleveland; and thousands of other observing and thoughtful dentists throughout the world are giving minute instructions to their dental brothers and to the world about how to use this implement in their daily toilet exercises for cleanliness and hygiene of the oral cavity, to prevent possible harm to gums and teeth.

Myriads of refined people daily employ the tooth brush, strands of floss silk, and dainty mouth washes in their efforts to keep their mouths and teeth "clean and healthy." A few years ago I paid especial attention to this point, and reluctantly arrived at the conclusion that the failures to succeed in this were out of all proportion to the successes attained, and that possibly old Dr. Clowes was right in his startling announcement of half a century ago. What are we to do? The American dentist has been a leader in devising practical methods of caring for the teeth. Is there any remedy for the failure of refined people, who earnestly desire to protect their gums and teeth from the diseases and loss which is openly charged to the "effects of civilization?" Then it was borne in upon me with force, that it is impossible for the large majority of people to acquire the skill necessary to thoroughly cleanse their teeth. They can do a little, but the calcareous deposits insidiously find points of deposit, and adhere and accumulate. Food debris is not easily brushed away. The dentist will not "clean teeth." His dignity as a high class oral surgeon, as an accomplished orthopedist, as a pathologist and physiologist and student, makes him cringe and shrink when a lady or gentleman of his acquaintance calls upon him professionally and says, "Doctor, my teeth need cleaning." Only since the name "prophylaxis" has come to the front, has he had any way of escape from such affronts, so he took the cloak and called it a "prophylaxis treatment for the cure of pyorrhea." (?) The skillful cleaning of the teeth when the gums are still healthy, and the teeth are in such perfect physiological condition that they can perform perfectly their function or functions, is the best and about the only way that we know of today to practice true oral prophylaxis. With this idea filling my mind and imagination, I read a paper before the Odontological Society of Cincinnati—(this was several years ago)—and advocated the establishment of a sub-specialty in dentistry, consisting of trained women who would clean the teeth of patients. These women were not to practice the profession of dentistry, they were to be like trained manicures, to whom people could go and have their teeth cleaned, and that is all. The colleges were beseeched to train women in the infirmaries for this one purpose, and to give them a certificate when proven competent. Dr. Rhein, of New York, was enthusiastic about this matter, and once said to me: "If I could give up some work that I must attend to, I should open a school myself for this very object," the training of women in prophylatic work. I read a number of papers, by invitation, in different cities, and before a number of dental societies, on this same project, and at last came to the conclusion that dentists were not really ready for prophylaxis or preventive dentistry. Their "prophylaxis" is a name under which they prefer to sail, when practicing dental surgery, for the treatment and cure of "pyorrhea." But, gentlemen, while I tired of boring people about this sub-specialty which I suggested, I am not tired of waiting for the time to come when the dental profession of America will establish this important practice of prophylaxis against all oral diseases. The time will surely come. I am certainly within the bounds of the subject assigned to me when I assert that manipulative prophylaxis, prophylactic operations, the cleaning of healthy teeth, and other oral tissues should be delegated to trained skillful and dainty operators in this one line of important work—to keep the mouth free from extrinsic irritants. This, by no means to infer that these special laborers, should deal with diseased conditions, any more than that the manicure should be a skin specialist.

This is all that I can say now after careful study and much thought for several years, on the subject of prophylaxis in relation to pyorrhea, or any oral disease.

The basal reasons succinctly stated are, first—people cannot successfully clean their own teeth. Second—dentists will not do what they consider the patient's business, i. e., cleanse teeth. Third—prophylaxis, or preventive dentistry, depends largely upon clean teeth, therefore, it is the duty and part of the business of the dentist to carefully train a class of people to do this work in a skillful and safe manner.

DIAGNOSIS AND PROGNOSIS OF PYORRHEA ALVEOLARIS (SO-CALLED).*

BY WM. H. G. LOGAN, M. D., D. D. S., CHICAGO, ILL.

In reviewing the opinions of our most authoritative writers and clinicians from the time of Dr. Riggs down through all the years, one is confronted with a great array of essays bearing varied titles, dealing with the disease known to the dental profession as pyorrhea alveolaris.

Yet in spite of this variation of titles, there is a great uniformity found in the manner in which the subject has been handled by the various men. For in practically all cases the authors in the first half have confined their discussion to the unfortunate nomenclature, and that unsolved problem as to whether the initial etiological factor was systemic or local, and in the final half have for the most part confined their statements to the technic of the removal of deposits found in the pyorrhea pockets, thus leaving out any extensive consideration of the diagnosis and prognosis of this disease, and with few exceptions we find no effort has been made at any logical appropriate classification of the varied diseases that have their origin

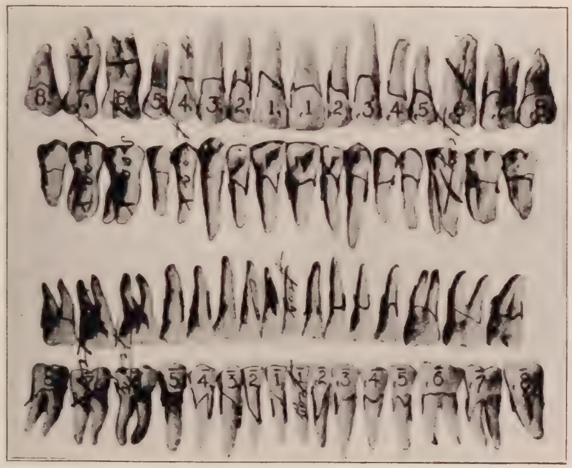

Fig. 1

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*Read before the Chicago Dental Society, February 21, 1911.

at the gingival margin of the supporting structures of the human tooth.

This unfortunate omission of serious written thought upon the diagnosis and prognosis and the small amount of effort exerted upon the proper classification of these lesions, is to my mind accountable for the development of many pronounced cases which could and would have been in many instances controlled if the profession's mind had only been sufficiently focused upon the early definite clinical symptoms of pyorrhea alveolaris (so-called).

And, on the other hand, if we as a body had been keeping case records as shown in slide Nos. 1, 2, that in detail stated the age, occupation, habits, family history, general systemic conditions, history of previous and present conditions of teeth and supporting structures, diagnosis of the presence or absence of gingivitis, pericementitis, phagedenic pericemental alveolitis with number of teeth involved with each, and with the prognosis of all remaining teeth, with such added detail information in reference to each, as is shown in the history sheet of Mr. H., we then would have been doing our duty instead of neglecting it.

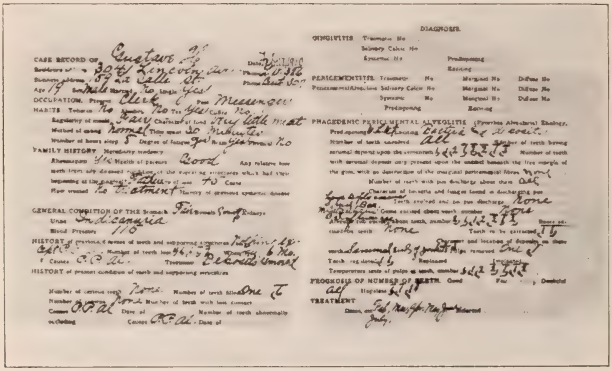

Fig. 2

For with a group of a few hundred of such case records before us which dated back even twenty-five years your essayist would not be confronted with the necessity of expressing only his personal opinion upon the diagnosis and prognosis in a given case of a patient suffering from this disease, but could here record certain facts that men would wish to review before passing final judgment upon the hopelessness of undertaking the treatment of diseased conditions of the supporting tooth structures that had their origin at the gingival margin.

With the present grouping of the varied diseases having their beginning at the gingival under the term pyorrhea alveolaris, and this term meaning the flow of pus from the alveolar process, and in view of the fact that pus would not as a rule be forming at the expense of this alveolar process until some time after the gingival organ or marginal pericemental fibres had been the seat of an earlier destructive pathological disturbance, I, therefore, find myself forced to the conclusion that the profession has great need of a fixed and accepted descriptive classification of the various diseases that have their origin at the gingival margin.

For, if we continue to use the term pyorrhea alveolaris in the future, then future essayists, like essayists of the past will find themselves confronted with the necessity of defining what in their minds is meant by the term pyorrhea alveolaris before taking a definite stand in reference to any phase of this disease, and especially to the etiology, diagnosis and prognosis of this lesion. And now, with the thought in mind that it is easy to complain and object to conditions or to classification or description .of diseases as we find them and so hard to take a stand in the effort to form new thought, or classification of disease that may be found after a few brief days to be less true to the conditions under discussion than those we have opposed, I find myself almost persuaded not to try to make a definite assertion upon the question which confronts me.

Yet feeling that the good wishes of my profession are always with those who try to build, even though they may disagree with their findings, I here propose to make positive statements in reference to what should and what should not be classified as pyorrhea alveolaris; and invite your candid criticism, and the only favor that the essayist wishes to have granted is that if you are not in accord with the ideas here expressed, tear them out and crush them down with better arguments that are backed by more scientific investigations and extensive clinical observations to the end that all of us may render better service to humanity tomorrow than we did today.

In my effort to find what diseased conditions my fellow practitioners call pyorrhea alveolaris, I learned from some general practitioners that they contend a patient only has pyorrhea alveolaris when a considerable amount of tissue destruction in proportion to the normal amount of the supporting structures here found has occurred, and deep pockets are present from which a copious amount of pus is discharging; furthermore, they hold this disease as above outlined to be incurable and they look upon it as their duty to so inform their patient. While from some enthusiasts engaged in this line of work, I am led to believe by their oral and written statements that they classify all recessions of the gingival organ or gum tissue that is extensive enough to involve even a few marginal pericemental fibres as the presence of an extensive destruction serious disease and call it pyorrhea alveolaris without any fixed regard as to what caused this recession and marginal pericemental destruction, or whether there is any condition present that will continue this diseased process.

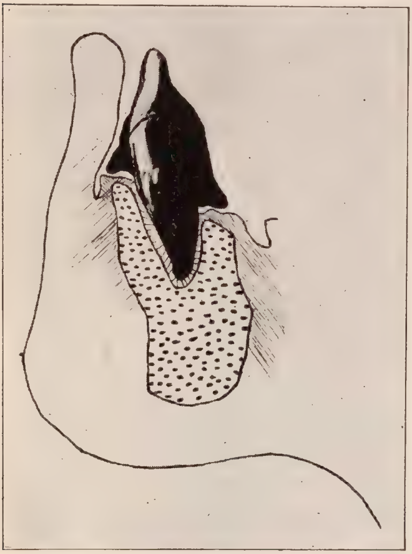

Fig. 3

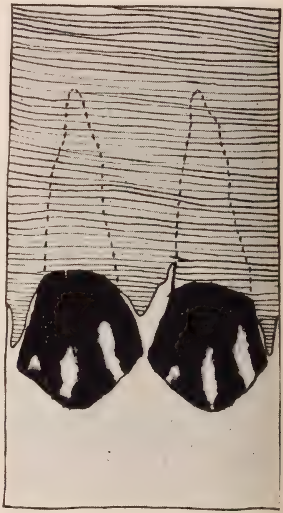

Fig. 4

Personally, I cannot bring myself to classify the condition as shown in slide No. 3 as pyorrhea alveolaris, simplex, or as dry pyorrhea alveolaris, as many writers do. Although we here find the presence of excessive deposits that have been acting for a long period as a local irritant to the supporting structures about this inferior incisor, to the end that we here observe extensive pericemental and alveolar tissue destruction from the irritation caused primarily by salivary calcific deposits which resulted at first in a constructive, then next in a superficial chronic destructive inflammation of the gingival organ and marginal pericemental fibres, thus allowing the salivary calcic irritant to be deposited farther down, upon the exposed cementum in such form and position as to produce and maintain a chronic destructive inflammation that will soon involve the adjacent alveolar process as well as the marginal fibres of the pericemental tissue, if the irritant is not removed.

In a general way salivary deposits become attached to the teeth in such a uniform and characteristic shape that we find a reduction of the supporting structures from the gingival line taking place in a definite manner without the creation of any well defined pocket that is being formed as the result of the pericemental tissue destruction, far in advance, of the alveolar process and gum tissue. And one of the controlling influences that mitigates against the formation of abrupt deep pockets from the presence of salivary calcific irritation is the somewhat triangular outline assumed as the deposit is formed. With the line forming the base of the triangle acting as the main causative primary influence in maintaining the chronic destruction of the pericemental alveolar and gum tissues.

In the first stages of salivary calcic irritation we note a few days after its lodgement upon the enamel corresponding in location to the upper few lines of the free margin of the gum the beginning of an inflammation which is confined to the gingival organ, that results from the presence of the salivary calcific deposit which rests more upon the free margin of the gum than between it and the tooth.

Therefore, it should be called by a term that would designate to some degree at least, first the cause, second the character of the disturbance, and third the exact tissue that is involved in the disease. The term salivary calcific gingivitis seems appropriate, for it immediately suggests the presence of an inflammation that is confined to the gingival tissues, that has resulted in the main from the presence of a salivary calcic irritation. In case that this spoken of deposit remains and the inflammatory process spreads to the pericemental and alveolar tissues to a limited or to such an extensive degree as shown in slide No. 2 before you, which shows the upper surface of our remaining supporting tissue as passing out at almost right angles from the present pericemental attachment across and over the alveolar process and gum tissues.

As here described and shown, I would not look upon it as a serious involvement, for such a tooth if a little more than one-half of the supporting structure still remains; and accordingly I hold that in view of the fact that we here are dealing with a destructive inflammation that is involving the pericemental and alveolar tissues and that salivary calcific deposits are acting as the main primary irritant, this condition could rightfully be called salivary calcific pericemental alveolitis. Thus, again, by the name indicating the fact that the presence of salivary deposits has resulted in an inflammation of the pericemental alveolar tissues.

In slide No. 4 we have represented the buccal surfaces of an upper first and second bicuspid with a sufficient loss of normal contact to allow of such injurious impact of food against this gum and marginal pericemental tissue that the normal gingival organ and marginal pericemental and adjacent alveolar structures are being slowly destroyed by the influence of a chronic inflammation that was started and now is maintained by the traumatic injury that follows the forcible passage and retention of food between these teeth against the interproximal tissues. However, the gradual loss of these structures is periodically hastened by the ingrafting of an acute infective process in the form of a septal abscess in this area that soon subsides by giving way to the chronic inflammatory state that had here previously existed. Here again we see tooth supporting structures gradually lost from diseased conditions that had their beginning at the gingival and that should not in all cases be classed as pyorrhea alveolaris.

I would not call the condition as shown in slide No. 4 (that is now upon the screen) to be pyorrhea alveolaris, providing that when proximal contact was lost to these teeth their supporting structures were normal about the gingival and that the disease of the gingival tissues here shown started after loss of contact, therefore the loss of contact was in no way primarily influenced by irritations or diseases at, and about the gingival; and that the cause of the initial inflammation occurring in the pericemental and alveolar tissues is known to have been produced and maintained by the results of food lodgements acting as a traumatic injury to the part.

Next, that these tissues are gradually being destroyed without the clinical evidence of pus formation with the exception of the amount that is found during the brief acute septal abscess stage period and if no serumal deposits are found I would not class it as pyorrhea alveolaris; but would call this condition by a name that would designate the cause and the tissue involved, hence the term traumatic gingivitis, if only the gingival organ is involved, or traumatic pericemental alveolitis if the pericemental and alveolar tissues have been thus irritated from a traumatic injury.

Before passing to the next division of my paper, allow me to state that I believe that traumatic pericemental alveolitis as above described is only present for a brief period before there is a more serious involvement occurring in the part.

The final destructive process of the tooth supporting structures, that I wish to call your attention to as not being pyorrhea alveolaris, although we frequently find a patient who has or is soon to lose most of his teeth from its progress, is the condition that our older patients suffer from so often, in spite of the fact that they may be enjoying good health.

This condition should be classed in the future as in the past as senile atrophy of the pericemental and alveolar tissues and not pyorrhea alveolaris, providing we have present the following symptoms of senile atrophy: First, extensive gum tissue recession and gradual absorption of the pericemental and alveolar structures without pus formation. Gum and overlying soft tissue healthy in appearance, considering the condition that is in progress. Absence of serumal deposits in any pocket. Absence of severe pain even if pockets are formed by the impact of food. Absence of the usual amount of pain from thermal shock irritants that ordinarily accompanies such extensive root exposures as are seen in advance types of senile atrophy of the pericemental and alveolar tissues.

Having now described and endeavored to classify three distinct destructive conditions that frequently result in the loss of a small area of the tooth supporting structures and in other cases the involvement has been shown to be sufficiently extensive to soon demand the loss of a tooth if not properly treated without the manifestations of such characteristic diagnostic symptoms of diseases as your essayist feels should be rightfully considered of such a serious nature that one should apply the term as first employed by Dr. Rehwinkel of pyorrhea alveolaris (1877 in the city of Chicago), or phagodenic pericementitis as first employed by Black (1882 at the Illinois state meeting).

Thus, having stated what is not pyorrhea alveolaris, I now find myself confronted with that difficult problem of stating in writing an answer to the question, "When has a patient pyorrhea alveolaris and what are its characteristic diagnostic symptoms?"

I maintain that a patient has pyorrhea alveolaris, as shown in No. 5, according to my interpretation of the disease (not of the term pyorrhea alveolaris), whenever and wherever serumal deposits are found upon the exposed cementum and a chronic septic destructive inflammation coexists in the pericemental and alveolar structures, with or without the clinical evidence of pus being present at all times, providing that this exposed cementum resulted from some disturbance that had its origin from the gingival line. (This last statement is meant to exclude those cases of serumal deposit seen involving the apices of roots as a result of chronic peri-apical inflammation, and those small islands of serumal deposits that are infrequently lodged in the pericemental fibres from idiopathic causes and tumor growths involving the pericemental membrane.)

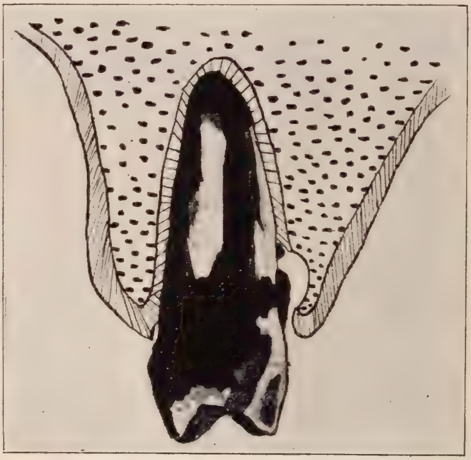

Fig. 5

Phagedenic pericemental alveolitis (pyorrhea alveolaris) is also present whenever and wherever we find a chronic septic destructive process beginning at the gingival and progressively involving the pericemental alveolar tissue in such a manner as to create well defined pockets in the form of narrow routes at the expense of pericemental tissue and the inner surface of alveolar structures some distance in advance of the alveolar rim involvement, which as a rule is surmounted by a very normal colored gingival organ, when one takes into consideration the immediate proximity of this serious disease. According to this outline phagedenic pericemental alveolitis, or pyorrhea alveolaris (so-called) exists without serumal deposits being found in the pockets as well as with them.

Yet I feel one is well within the true findings when he affirms that it is in only a very small percentage of these cases where no serumal deposit is present. *And furthermore is there a man among us who is willing to state and can bring clinical and scientific proof that we do not have in every case a very irritating deposit of a fatty glue-like substance present upon practically all exposed root surfaces that are bathed with the secretions found in these pockets. and that these organic plaques do not need the same careful removal and attention given to the serumal depoits, if we expect our cases to return to normal and remain so for long?*

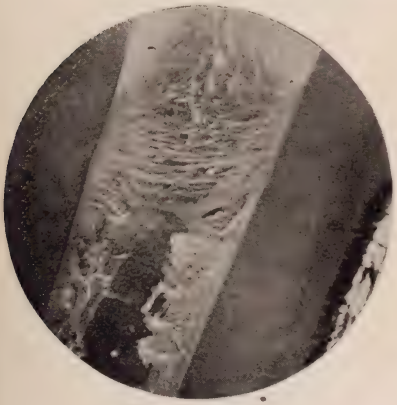

Fig. 6. Human

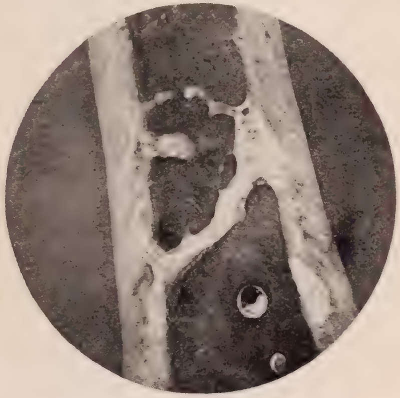

Fig .7 Sheep

In view of the fact that we find so many varied conditions capable of acting as predisposing influences in this disease, and since no one has as yet demonstrated to the satisfaction of the entire profession that we have here only a single etiological factor to deal with, your essayist wishes to state that he at least does not know how one can record the exact time that pyorrhea is beginning. For surely this disease has been in progress some time before the gingival pericemental fibres were destroyed in such a manner as to allow of the formation of pockts and the resultant exposure of cementum that may or may not be in part covered by serumal deposit. Therefore, I shall not endeavor to clinically record when a given case of pyorrhea has its beginning. But instead try to make plain that whenever you find serumal deposits persent in the pocket upon the exposed cementum that was laid down under the conditions already described in detail in this paper, that you have in this serumal deposit a clinical manifestation of a previous disease of sufficient gravity to call for your immediate professional interference and future watchful solicitation if you wish to save the remaining pericemental and alveolar structures in a healthy state throughout the life of this patient. For whenever we find serumal deposit in a pocket that is even no more extensive than is represented in slide No. 5 you can and rightfully should inform the patient that she is suffering from a disease of the supporting structures of this tooth, that if allowed to go untreated in due time this and adjacent teeth may be lost.

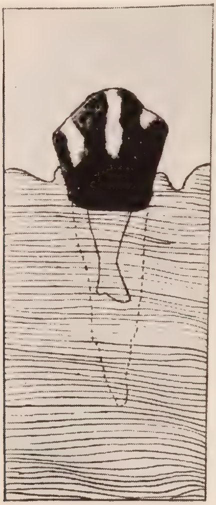
Fig. 8

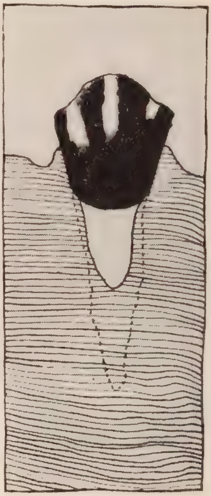
Fig. 9

DIFFERENTIAL DIAGNOSIS BETWEEN SALIVARY CALCIFIC PERICEMENTAL ALVEOLITIS AND PHAGEDENIC PERICEMENTAL ALVEOLITIS (PYORRHEA ALVEOLARIS, SO-CALLED).

SALIVARY CALCIFIC PERICEMENTAL ALVEOLITIS.	PYORRHEA ALVEOLARIS. (So-Called.)
1. Does not start nor rapidly progress in most cases for months and in some instances for years after the presence of the irritant.	1. After the disease has progressed to the point where it can be diagnosed, it proceeds as a rule constantly and rapidly in comparison.
2. Usually confined to inferior incisors and buccal roots of first and second molars.	2. May begin with any tooth and has the tendency to spread by continuity and contiguity to all the other teeth.
3. Progress is accomplished in uncomplicated cases without the formation of deep pockets.	3. Its progress is made characteristic by the formation of narrow pockets that follow largely the course of the blood supply of the pericemental membrane and into the alveolar process as it passes down the side of the tooth towards its apex.
4. Here the chronic destructive inflammation is superficial involving the gum tissue, alveolar process and pericemental membrane in such a manner as to cause its rather uniform destruction at right angles to its attachment to the tooth and quickly subsides upon the removal of the irritant, not to occur again to the same degree for many months even without treatment.	4. Here the chronic destructive inflammation is deep seated and envolves the pericemental alveolar structures far in advance of the gum tissue thus leaving the gingival structures and soft tissues that form the upper part of this deep pocket to catch irritating food products, and stagnant fluids that invite bacterial growth. Thus we have a tendency for recurrence of this disease.
5. The cause and manner of this irritative deposit is now solved. (By G. V. Black.)	5. The cause and manner of application of all irritants that produce pyorrhea alveolaris not solved.
6. Little or no clinical evidence of pus formation in the progress of the disease.	6. Constant clinical evidence of pus formation in the majority of cases is observed.
7. Practically all cases could be controlled if irritants were only removed every six months.	7. In a small percentage of cases pyorrhea alveolaris cannot be controlled if seen even every few days, unless the patient's general health undergoes a sudden revolutionary change towards the normal.

PROGNOSIS OF PHAGEDENIC PERICEMENTAL ALVEOLITIS (PYORRHEA ALVEOLARIS, SO-CALLED).

The probable prognosis of teeth involved with this disease is in a general way somewhat accurately determined by the amount of remaining attached tooth supporting structures found when the patient presents for treatment. I believe the prognosis is good with teeth having single roots when the pocket is confined to the gingival one-third and slide No. 6 shows the direction of the fibres in this area and the amount of alveolar process that would likely be involved; and the prognosis is held to be only fair when the middle one-third is rather extensively destroyed at its junction with the apical third. Slide No. 7 shows normal tissue of this area.

However, if we have such a case as is represented in slide No. 8 that is intended to show a pocket that for three-fourths of its length the alveolar process has been destroyed, leaving nothing but a poorly nourished gum tissue and mucous membrane to cover the exposed cementum, that will not, even after a number of perfect treatments remain contracted and lie in proper contact against the root, with the result that re-infection is occurring periodically. And so the prognosis for this tooth, although the disease has not passed into the apical third, is held to be doubtful, and in some cases hopeless, unless you remove the overlying soft structures and expose the cementum in accordance to the diagram seen in slide No. 9.

However, such a procedure is always counter-indicated until you have repeatedly failed by only temporarily controlling the disease in this pocket. Now, since the indiscriminate application of this plan for the obliteration of these pockets would positively result in more harm than good, I request that at the beginning you confine its use in most instances to buccal or lingual surfaces of bicuspids and lingual roots of superior molars.

The prognosis is held to be bad or hopeless in practically all cases where less than one-third of their remaining supporting structures is present, as is seen in slide No. 10 (after Talbot), for the reason that the fan-like distribution of the pericemental fibres that are still attached cannot give this tooth the proper stability. Such a tooth can as a rule be forced into its socket as if on a cushion, with but slight pressure, because of the loss of the pericemental fibres that radiate straight across and upward to the alveolar process in the middle third, as shown in slide No. 11.

The prognosis of teeth with multiple roots is held to be only fair after the attachment in the bifurcation has been fully destroyed. And hopeless if as extensively involved as is shown in slide No. 12, which represents a superior molar with its supporting structures entirely lost about the lingual root and little or no disease present around the buccal ones, unless as slide 13 represents, you excise the lingual root with all of that portion of the crown which is supported by it, and subsequently reproducing with inlay or crown sufficient lingual contour to prevent injurious food irritations to the tissues on the lingual surface of the buccal roots of this tooth.

Although I have affirmed that the prognosis is good in those cases where only one-third of the gingival supporting structures have been destroyed, I now wish to qualify that statement by the following one:

The prognosis of all teeth involved in phagedenic pericemental alveolitis is here held to be questionable regardless of the amount of tooth supporting structure which has been destroyed, unless the following conditions, if present, can be overcome, for the reason that the fibres that held the gingival organ in contact with the tooth as well as those fibres that interlace with the periosteum and those that run across and over the point above the alveolar process and join like fibres of adjacent tooth are in part or totally destroyed. The normal relation of these fibres are shown in slide Nos. 14, 15, 16, of human, dog and sheep.

First. Whenever we have a case presented with such abnormalities of occlusion that our diseased tooth has no antagonist, or are found to be receiving abusive stress, and lateral strain when brought into full articulation, unless these conditions can be corrected to such a degree that nearly normal occlusal forces are again brought into play upon this pericemental membrane.

Second. Whenever the contacts have been lost between two teeth in such a manner as to allow of the constant injurious impact and retention of food, the prognosis is hopeless, if involved with this disease, until we have bridged over or reconstructed our contacts in a form to prevent the future application of this form of traumatic injury.

Third. Unless we remove all crowns and fillings that have injurious effect upon the remaining supporting structures, and also remove all deposited irritants of bacterial and other form of organic films or plaques found in the pocket or other surfaces of the teeth in the same careful manner that we remove the two forms of inorganic formations known as salivary calculus that occurs above the gum tissue and the serumal that is found between the gingival organ and enamel or in the pus pocket upon the exposed cementum.

However, many of the earlier and present dental writers designate this serumal deposit found in pyorrhea pockets, as pyogenic or pus calculus in quite the same way that the older surgical works speak of the regenerating and degenerating connective tissue that forms a wall about a chronic abscess as a pyogenic membrane (meaning pus-producing membrane). But since pus is produced by pyogenic organisms and not by this tissue the term pyogenic membrane has been dropped from medical literature, and for the same reason I hold that the term pyogenic calculus should be discontinued by us, for fear that the students of other professions might think we do not recognize the true etiological factor concerned in the process which terminates in pus formation.

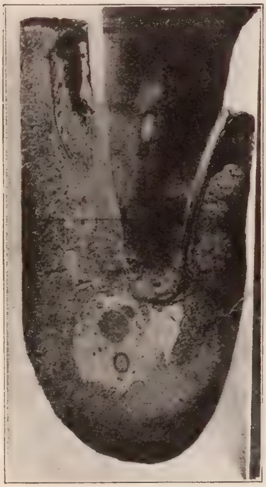

Fig. 10

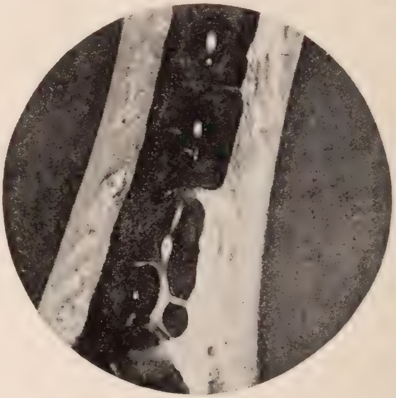

Fig. 11 Dog

Slide No. 17 has a bearing upon the question of the prognosis of the regulation of protruded anterior teeth versus replantation to overcome the deformity and to re-establish the pericemental masticatory influences. Personally, I have had more uniform satisfactory results following the regulation of the upper and lower six anterior teeth than when I extracted and replanted to correct the deformity.

For in the gradual shifting of these teeth with such orthodontic appliances as will cause body root movement and hold the weakened tooth under positive pressure or grasp while moving back to their normal position and into this practically new socket, a very desirable condition is established about the roots; however, replantation and implantation should be resorted to when indicated.

Figure No. 1, in this slide, shows the model of the patient's mouth, which was described in the sample case-record sheet in slide No. 1, and you here observe a great labial protrusion and rotation of upper left incisor and the lower right incisor is shown to have drifted far to the left because of the previous loss of the left incisor. In figure 2 we find the upper incisor has been regulated into its normal position and the lower incisor has been carried bodily to the right to make room for the implantation of the left central that is soon to be accomplished.

In figure 3 a case is represented where a left lower incisor has been lost from this disease and the space is to be filled not by implantation or bridge work but by regulation. The form of appliance here used is seen fastened on figure 3, and is known as the Calvin S. Case appliance No. 64.

In my effort to learn if any relation exists between the bacteria found in the pus or fluids to be secured from these various pyorrhea pockets and the probable prognosis of the teeth involved, I secured under proper bacteriological precautions and caused to have stained and cultures developed from the pus secured from thirty-four human cases and three dogs suffering from this disease; and reached the conclusion from these findings and from observations made by Miller, Cook, Talbot and Eyre, when they were endeavoring to find the specific organism of this disease. That not a sufficiently varied relation existed between the bacteria found in a pocket about a tooth that was but slightly involved and those bacteria secured in cases just previous to the extraction of hopelessly involved teeth. Therefore, your essayist does not desire to affirm other than that he knows of no positive information that has a definite bearing upon the prognosis of this disease, that can be gained by a bacteriological examination of the fluids found in these pockets.

However, I have here appended brief detail records of my findings in ten human cases and three dogs suffering from phagedenic pericemental alveolitis for future reference when dealing with a different phase of this problem.

Case No. 1.—Mr. M. J. F., pockets in apical third. Macroscopically, colonies small discrete. Also a growth of flat transparent fungi cover entire surface of agar with woolly appearance. Microscopically, No. 1, a small staphlococcus, very few comparatively; No. 2, diplococci, size and morphology similar to pheumococcus, also comparatively few in number; No. 3, a large laptothrix appearing organism, which under careful differential staining was found to be composed of a number of bacilli. These bacilli are short, blunt, squared ends and stain deeply basic and even. They vary much in size both length and width. They are most numerous of the organism at places distinct masses appear in the field. A distinct streptobacillis; No. 4, few collections of streptococcus were observed in the section.

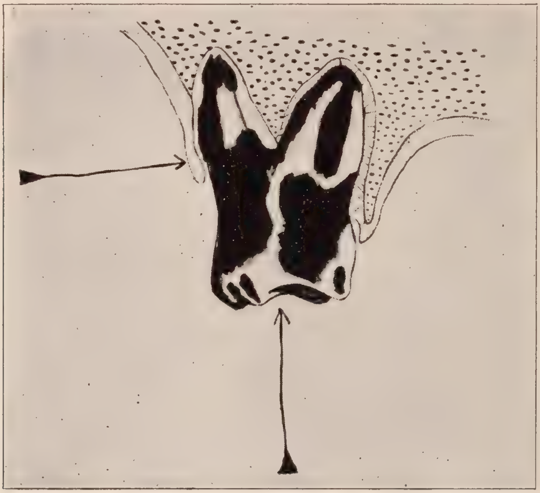

Fig. 12

Case No. 2.—Miss L. Pockets in apical third. Macroscopically, small colonies yellowish white, plainly confluent. Extended growth opaque. Microscopically, No. 1, staphlococcus, large, few in number; No. 2, diplococcus, very numerous, growth very slow on plain agar, larger in size than the pheumococcus.

Case No. 3.—Miss A. Pockets in gingival third. Microscopically, No. 1, small staphlococcus, few in number but distributed throughout specimen; No. 2, diplococcus, larger slightly than the pheumococcus, stains very unevenly, some deeply basic, others faintly basic stained; No. 3, macroscopically, two growths, one yellow, slightly elevated discrete colonies, second slowly extending transparent film over the surface of the agar.

Case No. 4.—Mr. J. B. W. Pockets in apical third. Microscopically, No. 1, long leptothrix organisms, few in number; No. 2, short bacillus not forming strets bacilli, coli commune in size and morphology.

Case No. 5.—Mr. L. S. Macroscopically, colonies few, pale discrete transparent, growth slow. Microscopically, No. 1, staphlococcus small, stains faintly, distributed throughout the specimen, certain areas very numerous; No. 2, diplococcus, few in number, irregular in staining qualities.

Case No. 6.—Mrs. F. B. Pocket in middle one-third. Microscopically, No. 1, staphlococcus very numerous, small almost the pure culture, comparatively even stain qualities; No. 2, very few strepto bacilli.

Case No. 7.—G. Microscopically, No. 1, staphlococcus medium in size, very numerous, even staining, almost a pure culture; No. 2, a very fine staphlococcus with faintly basic staining qualities.

Case No. 8.—Mrs. A. R. B. Pocket in gingival third. Macroscopically, No. 1, even diffused film on surface of agar. Microscopically, No. 2, pure culture of staphlococcus.

Case No. 9.—C. Macroscopically, No. 1, white and yellow colonies. Microscopically, No. 2, staphlococcus albus; No. 3, staphlococcus aureus.

Case No. 10.—Mr. B. Pocket in apical third. Macroscopically, No. 1, diffused growth over surface of agar, ash gray in color, opaque. Microscopically, No. 2, almost pure culture of small, short bacillus which in all probability the bacillus coli commune; No. 3, small staphlococcus.

Dog No. 1.—One mark. Smear from pus around teeth. 1. Long leptothrix, very numerous; 2, bacilli, simulating Klebs-Loeffler of diphtheria; 3, large bacillus, square ends forming strepto chains; 4, staphlococcus, small and large; 5, diplococcus, very large.

Dog No. 2.—Two marks. Smear from pus of pyorrhea. Microscopically, staphlococcus very numerous, small and faintly staining; No. 2, long myacelia of fungi; No. 3, very large bacilli, rounded ends, even staining, simulating the hay bacillus; No. 4, diplococci, slightly larger than pneumococcus, similar to morphology and staining properties.

Dog No. 3.—Three marks. Smear from pus of pyorrhea. 1, leptothrix in places were in bundles apparently adhered together by a substance; 2, short bacillus simulating a diphtheroid bacillus both in morphology and staining properties; 3, diplococcus large and numerous; 4, staphlococcus, very small, very many and faintly staining; 5, myacelia of fungi.

PROGNOSIS OF THIS DISEASE AS INFLUENCED BY THE APPLICATION OF VARIOUS CAUSTIC, ANTISEPTIC AND GERMICIDAL REMEDIES.

The indiscriminate use of lactic acid (C. P.), ammonium hydrogen florid, full strength solutions of tincture of iodin alone or in varied combinations with zinc chloride, etc., phenol in such strength solutions as now used, phenol sulphonic acid, and many other cell paralyzing antiseptics and germicides that are now generally employed in these pus pockets should be condemned as acting in the majority of cases against rather than in favor of controlling these suppurative processes. Please note that the statement has not been made that the condemned remedies will not temporarily stop the formation of pus when applied in the pocket, but it is claimed that they act against rather than in favor of maintaining such a control.

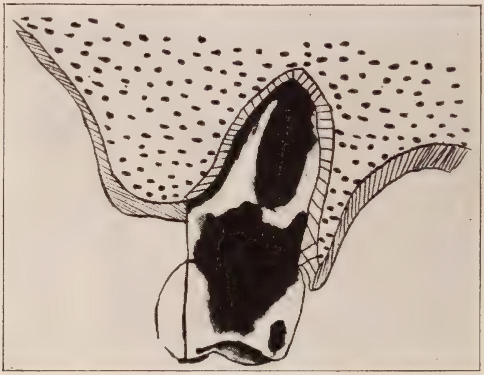

Fig. 13

To prove or disprove the above assertion, I suggest, for it is germane to the subject, that you treat one-half of the teeth involved in one mouth with this disease in a given number of cases with the old remedies and in caring for the remaining ones allow nothing after the instrumentation has been completed to pass into these pockets but 1 per cent solution of iodin and potassium iodid; or ½ to 4 per cent salt solution to which at times you should add sadium citrate qs. to make a 1 per cent solution.

The practical and scientific value of the salt solution was given to the medical profession by Sir Almroth E. Wright, London, Eng. And, furthermore, as result of experiments made by Post and Nicoll of the Chicago University, we have learned that 50 per cent argyrol, 10 per cent protargol, 25 per cent chinosol, 1 per cent phenol, 2 per cent liquor formaldehyde in glycerin 98 per cent and peroxid of hydrogen full strength will not destroy cultures even in a test tube in one minute exposures the organisms of strep. gon. pheun. B. typh., while 1 per cent silver nitrate and Senn's solution composed of iodin and potassium iodid one part to water four hundred parts, making practically a 1 per cent solution of these drugs, or alcohol 70 per cent will destroy the above named organisms if exposed for one minute.

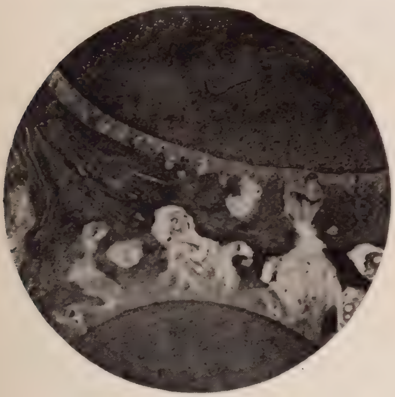
Fig. 14 Human

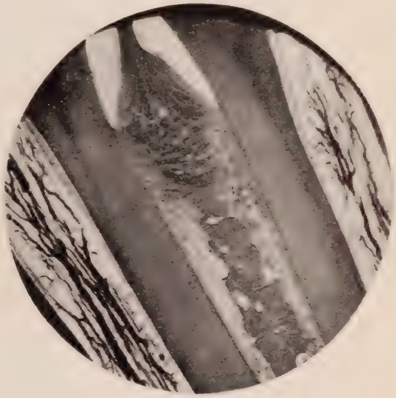
Fig. 15 Sheep

By quoting the above last named germicidal power of certain remedies, I hope you will not be led to understand that I believe we here have antiseptic remedies for the control of these infctions in an ideal way. For after all pus formation can only be permanently stopped through the activity of the substances found in the human system. And for the purpose of gaining your interest in the experiments as above outlined, let me state the case to you as Wright of London says he sees the antiseptic problem.

It is of course axiomatic that antiseptics can take effect only upon those bacteria with which they come in contact. It is obvious also in the case of bacterial infections of the mucous membrane or pericemental and alveolar structures that the invading bacteria will not all be lying on the surface and that they will not, when lying on the surface be limited to those regions which are accessible to these antiseptics. It follows it would be quite unreasonable to expect from any application of germicides a complete sterilization. For in every case a residue of bacteria will survive. Inevitably these will multiply and reoccupy the disinfected surface. And this is not all. The antiseptic will not, as the unthoughtful assume, add its antibacterial power to the antibacterial power of the living organism. On the contrary the antiseptic will directly antagonize the protective forces which the living organism has at its command. It will paralyze the phagocytes and will abolish the antibacterial power of the blood fluids. The disinfected surface will thus, by the action of the antiseptic be left "swept and garnished" ready for the invasion by the expropriated bacteria.

And again, this is not all. The frequent application of antiseptic fluids will also injure the histological elements and in particular the capillaries of the new forming tissue to which it is applied.

Any definite discussion of the relationship that exists between certain general systemic diseases and the bearing they may have upon the prognosis of teeth affected by this disturbance, cannot for lack of time and the general fitness of things be entered into here, other than to say that whenever we have a patient suffering with phagedenic pericemental alveolitis presenting for treatment with a history of chronic low systemic vitality, we should be very guarded in our statements in reference to the prognosis, unless we have reason to believe that our patient's general health can be raised to and sustained near the normal standard.

In closing I desire to state it is your essayist's opinion that the public will receive far better service in reference to the care of the tooth supporting structures from the young men who are to come into the ranks of the dental profession in the next ten years than they have from any similar number of dentists in the past, for the following good and sufficient reasons:

The best dental colleges of this country will not sign a man's diploma until he has secured credits in this subject that can in part only be earned by administering to patients needing pyorrhea and prophylactic care a given number of treatments.

And this is not all; in certain schools a senior cannot qualify for graduation until his mouth has received sufficient prophylactic treatment to put it in a good hygienic condition, and I hold that the dentist who was compelled to have his own mouth properly cared for by receiving oral prophylactic treatments before he could graduate will with far better intelligence instruct the oncoming generation how to better prevent the present occurrence of the extensive destruction of tooth supporting structure, in a better way than we have in the recent past. For these men as students will obtain a full appreciation of the relation that exists between a healthy body and a normal mouth from the instruction received under the title of oral hygiene. Hence the prognosis of this entire problem is here prophesied to be most encouraging.

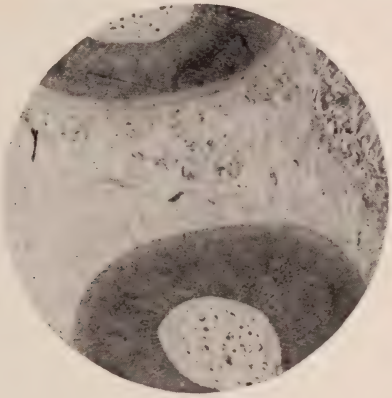

Fig. 16 Sheep

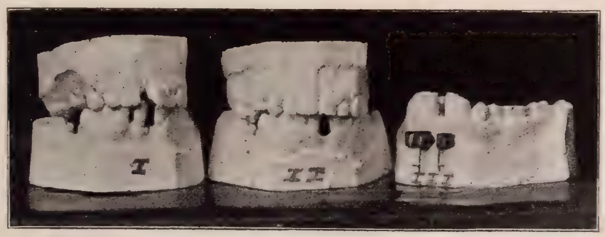

Fig. 17

A FEW OF THE MORE IMPORTANT ARTICLES REVIEWED BY THE ESSAYIST ARE HERE APPENDED.

Cook. Bacteriological Study of Pyorrhea Alveolaris Transactions, World's Dental Congress held at Paris, 1902.

Riggs. Discussion of Riggs' views by various men. *Cosmos,* 1877.

Wright. Studies on Immunisation.

Allen. Vaccine Therapy and Opsonic Treatment. Third edition.

Schorer. Vaccine and Serum Therapy.

Talbot. Interstitial Gingivitis.

Pierce. American Text-book of Operative Dentistry, by Kirk.

Black. American Text-book of Operative Dentistry, by Litch.

Bodecker. Anatomy and Pathology of the Teeth.

Patterson. Text-book of Operative Dentistry, by Johnson.

Inglis. Dental Pathology and Therapeutics. Burchard and Inglis.

Buckley. Modern Dental Materia Medica and Therapeutics.

Rehwinkel. The *Dental Cosmos,* 1877.

Hecker. The Bacterial Vaccines in the Treatment of Pyorrhea Alveolaris. *Items of Interest,* 1909.

Rhein. *Cosmos,* 1901 and 1902.

Good. Pyorrhea Alveolaris. DENTAL REVIEW, 1905. *Cosmos,* 1902.

Merritt. The Protective Substances of the Blood, etc. *Cosmos,* 1909.

Post and Nicol. The Comparative Efficiency of Some Common Germicides. *The Journal of the American Medical Association,* November, 1910.

Kirk. The Problem of Disease Invasion. *Cosmos,*. 1905. Prophylaxis. *Cosmos,* 1911.

Shearer. Carbonic Acid as a Factor in the Genesis of the Gouty State. *Cosmos,* 1905.

REPORT OF COMMITTEE ON DENTAL SCIENCE AND LITERATURE.*

BY DR. ARTHUR G. SMITH, PEORIA, ILL.

As was the case in 1910, the year 1911 has seen no phenomenal or epoch-making achievements in the fields of Dental Science and Literature. This by no means signifies that these fields have been already explored to their utmost borders, or that earnest and tireless scientific workers have not been abroad in them by night as well as by day. Never a year, of all the years that have passed, has seen so many capable and well equipped men, seeking with true scientific enthusiasm to solve the problems that still confront and baffle us.

These things being so, it forces us to realize that in spite of our steady march of progress, in spite of the achievements of recent years, the great first causes of dental caries and pyorrhea still remain undiscovered, and we are even yet forced to hide our ignorance with regard to them under such phrases as "Hereditary tendency," "Imperfect elimination," "Favorable environment," "Improper assimilation," "Periods of susceptibility," "Faulty metabolism," etc.

That the mysterious first causes of these two almost universal diseases of the human teeth and their supporting tissues will one day be discovered seems beyond any reasonable doubt, therefore let us not be discouraged if, for the time being, the reports of progress from our foremost investigators, seem not to show the advance that has been noted in some other years.

A survey of the usual sources of information upon which a report of this character is based reveals many things of interest and importance.

Not a single article has appeared touching in any way upon our late lamented acquaintance—the porcelain inlay. So far as our current literature is concerned, the porcelain inlay is as dead as the proverbial "Dodo," with no friend at hand to pen even a glowing obituary notice.

The silicate cements have received scant attention from their one-time admirers; while not abandoned, they are much more in the background than was the case a year or so ago. While still encountered in "greatly improved forms" in the advertising pages of our magazines, they seldom appear in small type as "pure reading matter."

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*Read before the Illinois State Dental Society May, 1911.

Gold and amalgam fillings have received less space and attention during the year just passed than ever before in the last quarter of a century. This by no means indicates that they are being utterly abandoned or even largely displaced by other operations; rather does it show that all points connected with their proper use and employment have been so carefully and scientifically worked out by the highest authorities that practically nothing remains to be said on the subject.

Orthodontia is receiving the large amount of space and attention merited by its great importance. The wide variety of views expressed and the earnestness with which each differing idea is presented and defended, indicates that this science is still in the formative period; like the automobile of some four years ago, it has not yet been "reduced to standard." Extraction in selected cases versus universal expansion, retraction in prognathic cases versus surgical resection; around these ideas the warfare is hottest. What the final verdict will be no man save a pronounced partisan can at this time say.

The subject of dental caries has come in for less attention than during the years when Black and Williams were turning their magnificent powers of scientific observation, analysis and experiment upon it, and little new light has been shed by what has been done: though the article by Kirk in the *Cosmos* for July, is one of the most comprehensive and readable presentations of the best thought on the entire subject that has ever been given us. After a masterly review of his own experiments and the observations of other undoubted authorities, he concludes that the precipitation of mucin by the secreted lactic acid is a prominent factor in the production of caries, and further that caries is very largely dependent on the "food habit," and the desired immunity will one day probably be obtained through more intelligent and rational dietetic hygiene.

Articles on pyorrhea have been plentiful and of all degrees of value and interest. One thing is evident: we are not yet agreed in our writings as to what the disease really is. Each writer is clear in his own mind that *he* is writing about the real, genuine, bone-destroying, pus-exuding article, but solemnly warns you against taking too much stock in the writings of some other man, who is showing you the kindergarten method of treating and curing something easy that is not really pyorrhea at all. Excellent articles have appeared during the year on this subject by such men as Talbot, Rhein, and our own beloved members, C. N. Johnson and J. P. Buckley.

The casting process, as applied to all forms and branches of operative work, has been largely exploited and discussed: going ahead by leaps and bounds in a way that even its most ardent admirers would scarcely have predicted for it a short time ago. Little on this subject has recently appeared from the pen of its discoverer, our own well loved and admired Dr. Taggart. However, in the *Cosmos* for March, is published an exhaustive and scientific treatment of the subject as applied to the casting of gold inlays, written by Weston A. Price. It takes up every possible source and form of error that may arise throughout the various processes in common use, and enumerates and studies twelve of these. Most important in the conclusions of Dr. Price are, the shrinkage of the wax model upon cooling; warping or distortion of the wax model through a tendency to return to the original form it had before being forced into the cavity; shrinkage of the gold in passing from a fluid to a solid state, and the further shrinkage of the gold in cooling down from the point of solidification to ordinary temperature. Various tables are introduced, showing the behavior of the waxes and investments on the market, and the recommendation is made that every one study these tables and learn the exact heat combination of wax and investment, which will give least distortion with the combination of materials which each man is using. The net conclusion reached is, that in the present state of our knowledge and with the best material at our disposal, it is absolutely impossible to make an inlay which shows less than one per cent of error, and that from three to six per cent is more often the amount of error in ordinary work. Pure gold is strongly recommended with every margin along bevelled overlap, so that it may be burnished tight. Dr. Conzet also contributes in the *Items of Interest* for December and January some excellent and clearly expressed views and directions with regard to cavity preparations and inlay technique. Here again we find strong insistence upon the cavo-surface bevel, and burnishing of margins after cementation. In this same periodical appears an article by another of our famous members, Dr. Goslee, dealing with the subject of castings as applied to crown and bridge work. This article should be a source of joy and inspiration to any reader. The illustrations are clear and well executed, and the whole subject is handled in a manner so concise as to be readily grasped and understood.

However, by far the most striking feature of the literature of our profession during the past year, has been the space and attention devoted to General Education of the Public, and the care of the teeth and mouth by both dentist and patient. One magazine has recently appeared which is entirely devoted to these subjects. Other magazines have issued entire numbers devoted to them; while almost any dental publication which you may pick up has from one to half a dozen such articles. Outside the field of our own literature, in periodicals of general circulation, several excellent articles have appeared. In a recent issue of the *Saturday Evening Post,* Woods Hutchinson—easily the most widely read of modern writers on medicine, hygiene and allied subjects—writing on the sin of homeliness, says: "A rather careful study of the architecture of the human face, both in pictures and life, leads me more and more strongly to the conclusion that the commonest element of what we term ugliness or positive homeliness in a face is underhung, overhung or otherwise misformed or crooked jaws and irregular teeth. You may not be able to make your child beautiful by putting him in the hands of an intelligent dentist, but you can prevent him from growing up downright homely." The direct result of this widespread campaign of education is a great awakening on the part of the public to the supreme importance of sound teeth and healthy mouths, and an added responsibility is placed upon our profession to perform our work in such a manner that it shall be in the highest degree serviceable and clean, as well as sightly. Aside from the summaries under these heads, many valuable and able contributions have been made to our literature during the period covered by this report. To select, as worthy of special mention, any particular article, is extremely difficult. However, a few of general interest will be briefly referred to.

J. Leon Williams, in the *Cosmos* for January, presents a strong plea for the higher artistic possibilities of prosthetic dentistry. The utter failure of any existing molds of artificial teeth to truly represent the natural organs in either appearance, contact points or occlusion is graphically shown by a number of excellent illustrations. Dr. Williams claims that there are but twelve distinct types of teeth in civilized man, and that with each of these twelve types produced in three sizes of molds (making thirty-six molds in all), there would be a practically perfect tooth available for any case. For the selection of color he promises us in the near future, a color scheme which will be absolute; i. e. taking note on a scientific basis of the color of the hair, skin and eyes, the color of the teeth will be determined with absolute certainty.

In the *Cosmos* for March there is an excellent article by C. S. Van Horn, entitled, "The Service Side of Dentistry." This paper is bright, readable and common-sense. It puts the everyday human side of practice to the fore, and will carry great comfort to the common man who is honestly striving "to do the best he knows how" with what judgment and skill he possesses, for the ailing and suffering stream of fellow men that daily passes under his hands. Pungent sentences and bright epigrams abound. No article that has been published during the year will give the rest and comfort to the average dentist that this one will.

Of a far different sort is the paper of C. Edmund Kells in *Items of Interest* for August, which deals with "The Business Side of Dentistry." This is a lengthy and ably written description of the business side of the author's large and evidently fashionable and remunerative practice. The long and somewhat lofty discussion which follows is by such well-known men as Gillett, Evans, Van Woert and Ottolengui.

Because this paper and its following discussion is probably the best example of a large number of papers that have appeared recently, it may be worth while to consider its subject matter and conclusions a moment. In common with all others of the class which it is chosen to represent it places great stress on the importance of exact business methods, appointments kept to the minute by both parties to the appointment, and other clock work items, "World without end."

Now all this is well and good in a way and in proper proportion. *All* professional men tend to be lax in their business methods. We of the dental profession are no exception to the general rule. Anything which tends to make us thoroughly business-like to a reasonable degree is to be heartily endorsed. However, such articles, with their plentiful allusions to assistants, secretaries and bookkeepers, their assured mention of prompt monthly settlements for round fees; their rigid allusion to pay for all appointments not kept to the minute of standard time, are of doubtful assistance or encouragement to the average dentist. Only one in four to five of us the country over, has even an assistant, to say nothing of the rest of the helpers so lightly mentioned. If these exact systems of business practice have any place within their borders for the human problems which daily confront us, a rather careful reading does not reveal it. Where, in this beautiful business routine of hard and fast appointments, shall we put the daughter of the grizzled old farmer who has a large family, and who says, "Well, Doc, I'll bring the gal in a Saturday morning if the roads aint too bad and the hosses aint all too busy." What exact period of time shall we reserve for and charge up against the college-bred young woman who has had the courage to raise a family for a man of meagre income; who does her own work, and who cannot get away until she gets the baby asleep so that the young girl next door can take care of it. These, and scores like them, are our suffering fellow men, whom it is our duty to help by every means within our power if we would measure up to the stature of honest manhood. If we confront such as these with an appointment card which is a tacit contract to use exactly so many minutes of our time at a fixed price, we only force them to seek the services of the quack and the charlatan. Good business methods are good, but let us not get so much of the atmosphere of Wall Street into our work that the sweet air which once hung over the Sea of Galilee is entirely driven away!

BOOKS.

1. "Primer of Hygiene"—J. W. Ritchie.
2. "Our Teeth"—H. R. Dennison.
3. "Manual of Dental Metallurgy"—E. A. Smith.
4. "Business Problems of a Profession"—F. C. Brush.
5. "First Dental Directory of Canada." Dom. Dental Journal.
6. "Haskell's Manual of Plate Work"—L. P. Haskell.
7. "Gray's Anatomy." New Edition.
8. "Johnson's Operative Dentistry." Second Edition.
9. "Compend of Histology"—H. Radash.

10. "Die Technic der Harnuntersuchung und ihre Anwendung in der Zahnaertzlichen Praxis"—G. Guttman.

11. "Anatomy and Histology of the Mouth and Teeth"—I. N. Broomell. Third Edition revised.

NEW DENTAL JOURNALS.

1. "Shikwa Shimpo." Tokio.
2. La Odontologia Argentia.
3. La Odontologia Columbiana.
4. In Italy a new journal has also appeared.

It is impossible to read far in any periodical devoted to dentistry now published in this country without being struck by the lack of uniformity in our terminology.

Not only this, but many writers seem to delight in adopting the trick of the prize fight reporter who refers to the same thing or person in as many different ways and under as various names as possible. For example: in a single article the mouth is referred to as the "Oral Cavity," "Buccal Cavity," and "The Maxillary Region of the Genus Homo." Of course, this last phrase is absolutely indefinite and meaningless taken by itself, but from the context it is evident that only the mouth could have been meant when this phrase was written. "Prosthodontia," "Department of Prosthetic Dentistry," and "Prosthetic Part of Dentistry," are all used in referring to the same thing. This is not really bad, still why not select the proper term and stick to it. In one paragraph a bridge is very properly said to cause "an interference with proper enunciation." A little further on, however, we are told of the sad case of a bridge which had a "phonetic deficiency." This certainly was a fearful oversight on the part of the dentist who made it, who should undoubtedly have carefully tested the phonetic abilities of the bridge before placing it in the mouth. The term trituration is stolen from under the very pestle of the apothecary and forced to do an alien and undescriptive service in place of the proper term, mastication. Occlusal and morsal and their various combinations, as gingivo morsal, mesio morsal, etc. are used interchangeably. Occlusal and its combination is the accepted and proper term, why add confusion by adopting another, which has nothing to recommend it? Labio lingual and labio palatal are used only a few lines from each other; the former is the accepted term. When a man has shown his knowledge to be ample by writing a correct term and writing it first, it is plainly eviden that he shows only carelessness or indifference or straining after effect to write anything else later. The list might be considerably prolonged without going outside the limits of this one article, but enough has been cited to cover the point of the loose and improper use of terms.

Another point, almost equally bad, shown by this same writer, is that of useless verbiage—language which means almost nothing—mere collections of words and grammar. The following paragraph consists of a single sentence and contains thirty-two perfectly good English words, all of them old friends capable of doing good service if given a fair chance: "A lurid streak of almost criminal misunderstanding of the first principles of the science and of its limitations mars and scars the already variously and not too creditably tinted horizon of dentistry!" And still we wonder why so many tired dentists hurry home after a hard day's work and say "googoo" to the baby instead of reading their dental journal. A little further on we have a sentence of 113 words, ending with the phrase, "which presents itself devoid of dental members." If you have read the preceding 106 words and are still in full possession of your faculties you can readily figure out that what the gifted author is talking about is a jaw minus a few teeth, and not the depleted roster of a dental society. Life is short—we are most of us busy,—why, oh why not be plain?

Consider with me a moment a few words and phrases taken almost at random from the two most prominent dental journals published in this country. Note with what difficulty, if at all, you get any real, tangible ideas from these words and phrases: "Prosthetic Crown," "Physico Prosthetic Bridge," "Staple Jacket—partial crown carrying one or two esthetic dummies." It has been populary supposed that a rich and indulgent father was the one who usually carried esthetic dummies; it is a relief to learn that the same service can be performed by a staple jacket partial crown, whatever that may be. "Porcelain faces" are used by some men on their bridges, other men scorn to make a gold inlay but make gold insets instead.

Just what is meant by "the interproximal gingival sectional space"?

Canine, premolar.

Probably nothing in nature has been more admired and more variously described than the sunrise and the sunset. In all times and in every language these phenomena have forced the descriptive abilities of man to the limits of human expression. Of all those who have written on these subjects, probably no one has had occasion to write so frequently as our own weather bureau. Their descriptions read as follows: "Sun rises 4:41, sets 6:55." A trifle brief and unsatisfactory from the standpoint of a poet and dreamer, but mighty definite, comforting, easily found and understood by the busy man who happens to want to know something about that particular matter. The lesson of all this is, that we, each one of us, are the writers, the readers, yea the molders and creators of a literature that is rapidly taking its place along with the highest and best of the professional literature of this wonderful age in which we live. Let each of us pay particular heed to every word or phrase used or endorsed by himself, and all the difficulties now so apparent in our professional writings and discussions will be speedily solved.

PROCEEDINGS OF SOCIETIES.

ILLINOIS STATE DENTAL SOCIETY, MEETING AT PEORIA.

MAY 9, 10, 11, 12, 1911.

DISCUSSION OF THE PRESIDENT'S ADDRESS.*

DR. C. E. BENTLEY, Chicago:

Mr. President, Ladies and Gentlemen: I want to congratulate the President on the comprehensive manner in which he has presented this all-important subject, the most important that we, as a profession, have ever encountered. It will be manifold in its benefits, for we must remember that any group of men who work only for the benefit of themselves, will be considered a selfish group, but in proportion as we work for the benefit of the community, or for the common good, our dignity and our respect will be enhanced.

Now, we all know that reforms move slowly, and I suggest that we be not discouraged, at the seeming slow progress with which this movement may proceed. It has been twelve years in June that a similar inquiry was made, and just before leaving Chicago I dug out some remains of my correspondence, and the questions that were sent out, and I want to read to you the substance of that inquiry. The questions were printed in French, German, and English, and sent to people in cities throughout the civilized world of 25,000 inhabitants or more:

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*Read before the Illinois State Dental Society, May, 1911.

"At a meeting of the Odontographic Society of Chicago, a committee was appointed to make a general request of all schools or city authorities in the principal cities of the world, in order to ascertain what means, if any, have been employed to instruct or to encourage the children of the public schools in methods of hygiene of the oral cavity. To this end, will you assist the Chicago Odontographic Society by answering the following questions: 1. Are the children in your public schools instructed regarding the care of the teeth and surrounding tissues? 2. Are the teeth of the children in the public schools examined by a dentist who is officially recognized by the school authorities? 3. If instruction is given, or examination is made of the teeth of school children, will you kindly favor the Odontographic Society with information relative to the system employed, (1) the details of such a system; (2) the time such a system has been in use; (3) the results, whether satisfactory or unsatisfactory."

That was twelve years ago. The President received replies from something like 51.1 per cent of 126 cities written to, and I believe 70 per cent of replies were received in the Odontographic investigation. It was found that nothing had been done in this country, but in the older countries they had proceeded to a high degree of systematization. In Spain, Japan, Germany, and in parts of England and in France, they had had dental inspection of school children for a number of years, and were able to give us valuable information. As a matter of history, you can see upon what parallel lines these two investigations have been made, one by the Odontographic Society of the city of Chicago, and the other by our honored President. It has taken twelve years for the public conscience of this country to come to the present realization of the importance of this work, but today we are in the midst of it, and it is world wide. Yesterday it was endemic in this country. Today it is epidemic, and it behooves us as a body of men, who have the responsibilities of such a great charge upon our shoulders, to see to it that there is no backward step taken, but very few mistakes made, and, if possible, a full accomplishment of the task with which we are now entrusted, and I do believe, that will be done.

There has been an awakening of the dental conscience throughout the world on this subject; but I must say, even at the risk of some criticism, that the pressure from without has been as great as the pressure from within. The abuse of medicines, and the rise of serum therapy and its kindred and allied subjects have brought to our door a wave of hygiene, and in consequence men have been calling attention to the hygiene of the mouth. The medical men have been insisting that the mouth is the gateway to the human organism, and the bacteriologists have shown that in the mouth are found certain organisms, some of which are benign, and many of which are malignant, and the dental profession have become aroused largely from this pressure from without, or as much so, as we have from the pressure from within. Then came the Nestor and great apostle of what he calls "dietetic righteousness," and his preachment and philosophy have been world wide and accepted to a large degree. Horace Fletcher has contributed largely to this wave of oral hygiene.

The President has indicated to you, that this cause has reached a time when it requires organization. I want to call your attention to one fact. Success will not be reached unless by men of singleness of purpose, and a consecration to the cause. Wherever this work is to be taken up, in a locality or in a state, there must be a small group of men so inspired with the work and so unselfish in their devotion to the cause, that they will sacrifice all for its consummation.

The President cited New Jersey. I think that state has reached the highest possibilities in legislation, for the legislature has authorized the appropriation by the authorities of any large city or town of $5,000.00 for the carrying on of this work. I believe that is largely due to the wave of reform that has been sweeping over that state. Governor Woodrow Wilson is a man with a purpose; he is a man with a tremendous amount of enthusiasm, and great ability, and by reason of his forceful character and his magnificent personality, he has been able to impress upon the New Jersey legislators reforms, the like of which have not been accomplished by any state in this Union.

The importance of state recognition has been urged by the President. First of all, it gives a standing, and then it focuses attention, and supplies funds, and it offers dignity to the calling. The nurses in New York were referred to. I am very proud to say, that in the city of Chicago there are two hospitals where the nursing force is given training by dentists, who teach them oral hygiene, and in those two institutions there is a high degree of efficiency, so far as the treatment of patients is concerned, and especially the lying-in-patients.

The President recommended the appointment of a dentist on the State Board of Health. That is most excellent, and I trust this body will devise some effective means for carrying that recommendation into effect.

The President referred to the textbooks. If there is anything that is calculated to arouse the indignation of a dentist, it is to sit down in his library for an evening and pore over the physiologies that are used in our schools and see the meager and inadequate knowledge that is placed there for teaching children how to take care of the teeth. It is wholly inadequate, and I am in favor of the recommendation that we insist by such means as are at our command, that a chapter or chapters on physiology in these textbooks shall be written by dentists who are competent to write them, so that the child, as well as the teacher, can have a comprehensive knowledge, or a clear notion, at least, of what this important branch means.

We need in this propaganda, more than anything else, constructive work. We have got to construct a system or method by which this work can be carried out. That is our responsibility.

When the President came to the State of Illinois, he, with his generous praise, gave us credit for the various activities that have been carried on during the year; but what is the fact in the matter? We must keep this in mind: the object sought is the dental inspection of the children in the public schools. That is the burden of this address by the President, and that is the message he has brought to you.

Now, what have we done as a Society during the past year? We have had a Committee on Public Press, which has done excellent work, with which you are familiar, and concerning which you will have a report at this meeting. We have had a Committee on

Public Dental Education, and they have sent out lecturers; you are also familiar with the work of that committee; but what method have we adopted that would have for its ultimate object the dental inspection of the children in our public schools? Are there any communities in the State of Illinois today, outside of Chicago, having dental inspection of the children of the public schools? No. That is an end to which we must work, and I am going to submit to the President and to the Society a proposition that has for its object that definite purpose.

Here is my proposition: The Legislative Committee, the Committee on Closer Relations between the Dental and Medical Professions, the Committee on Public Press, the Committee on Public Dental Education, or any other committee we may have that is co-relative to such a purpose, should each select a representative from their committees, and these should form a central committee, which should have for its particular purpose the procuring of inspection of the children in the public schools. If that is their definite aim, it is very easy to have the public press committee, the committee on dental education of the public, the legislative committee and others as sub-committees of this central committee, co-operating with it, but let nothing interfere with that particular purpose in reference to that committee. I hope I have made myself clear. The purpose is to have a Committee on the Inspection of the Children in the Public Schools, and work for that end, and that end alone, and I think we can have sub-committees who can work to such an extent as is desired.

These committees must have funds, and possibly this committee would have charge of dispensing such funds. Certainly, it ought to have charge of dispensing such literature as will be needed for this purpose. Then, again, we need the full co-operation on the part of this Society. We need a larger number of men in this cause; and men who will unselfishly give of themselves for this purpose, and if that is done, I believe next year we will have something more definite to report, and that our horizon will be freer from the clouds that overhang it today.

Dr. W. H. G. Logan, Chicago:

Dr. Gallie's theme was, "The time, the place, and the work." Assuming that we all agree with the President, when he states that the dental profession has a mission to perform, with your permission, I would add, an ending that seems to me needful to that theme, and read "the time, the place, the work, and the how."

Before entering into a detailed discussion of the how, I wish to quote briefly from the closing paragraphs of the President's most admirable address, and these quotations are as follows: "And, now, with the tremendous work before us, how shall we handle it? Brains, energy, and enthusiasm will do a great deal, but something else is very essential, namely, money. The dues of this Society are hardly sufficient to carry on the work the Society is now engaged in, and as our sphere of usefulness enlarges, so also will our expenses. To carry on this work as we should, it is going to take some financing and many of our members who are in close touch with the great amount of work this society is doing believe that the dues should be increased. However, if raising the dues should be the cause of keeping anyone out, or of forcing out anyone who is now a member of the society, then I would not be in favor of making the increase. It has been suggested by some of our active men, who have given this question careful thought, it might be well to ask voluntary contributions to a special fund for this purpose."

If we desire to discuss the how in a simple manner, it naturally divides itself into three subheads: (1) The character and extent of the work to be undertaken during the ensuing year. (2) The amount of money needed to finance the proposed work, and the source of its supply. (3) The means to be employed to secure the attendance of the right individuals, and the consideration of the lecturer's duty to the assembly so convened.

I will take up the first proposition: the character and extent of the work to be undertaken during the ensuing year. I take it, there are three methods that we can adopt to carry this work to a possible successful issue. The first question for consideration is the public press committee. This committee receives its money from general contributions, and is self-sustaining. Therefore, from a financial point of view, we need not consider at this time the ways and means of caring for the public press committee. The second means of educating the people would be by tracts and booklets, and the booklet we have is not a perfect one; it needs a little revision, and printing more cheaply, not in appearance, but at a cheaper price. A booklet can be published for a cent a copy, and, when revised, it should be given out on all public occasions (when lectures are given) free to every person present. They should be purchased by local societies, or by individuals; therefore, the booklet or bulletin is self-sustaining.

The next proposition is the one of public lectures. These lectures will cost some money. What should be the extent of the work? It appeals to me that the number of lectures should be decided by the number of local component societies. In other words, during the ensuing year it would be wise to restrict the number of public dental educational meetings to one in each district, amounting now to something less than thirty. Let us hold one meeting next year in each district. Next year let us hold one in each district in a different city, and in that way carry on the work. We would then interest the local profession, and some of them need interesting.

The post-graduate work has been good, but it has not done anything more than we had hoped for it, and this will be testimony to aid the local profession in carrying on its work.

Now, finally, I wish to take up the matter of how we are going to finance this work, how much money it will take to hold a meeting in each local society throughout the state and pay the traveling expenses of the lecturer pertaining thereto. I find by going through the books that the traveling expenses of men sent throughout the state to lecture or give clinics averaged less than ten dollars.

It has been stated by the President and the gentleman who preceded me, that we need special funds or need to raise the dues. Let me take up what we have spent for special things in recent years. In the year 1906 we spent $500 for special work which was done. In the year 1909 the post-graduate course cost us $510; traveling expenses of men $198; legislative committee $111. We started the year with $798, and wound up with $853. In other words, we spent at the time $800 for special things, and had a little more than that in the treasury when we finished. In the year 1910 traveling expenses amounted to $107; post-graduate course $186. We started that year with $873, and wound up with $1,509. In the year 1911 there was expended for traveling expenses $158; post-graduate course $106; Miller memorial fund $300; public education $125. We started the year with $1,500 or more, and now have in the treasury $2,218. Such is the condition of our treasury.

We do not need to raise the dues, and that they should not be raised is my contention. (Applause.)

Another point is with reference to voluntary contributions. What we should do is to do this work slowly, and do it well. The sending of a man out to each district will cost us about $10—about $300 in all. As to the paraphernalia of the lecturer, slides, and things of that kind, if it costs a lecturer $20 to get his things together in the way of slides and material, it is up to him to pay the bill, and I am down for one of these lectures. If the local society thinks a man has reached a point where he is wise enough to give a lecture, let the lecturer pay a little of the expense. If he is going to advertise, let him pay his share for it. (Laughter.)

Another thing: the traveling expenses of clinicians should be cut down. Let the man that goes from Chicago out into the state to give a lecture in the evening attend a local dental meeting in the afternoon, and give a clinic or read a paper, before his lecture in the evening.

The next question is, how to secure attendance upon the meetings. We have had a few meetings this year, but they have not been as well attended as they might have been. It is a large problem to get an audience of the right sort of people. The President has outlined what seems to me to be the best way to secure an audience, and that is this: the local society of dentists should join with the woman's club in that community and with the schools in that community and hold a joint meeting. Let the meeting be known as a dental meeting. Let these three bodies join together for the public good, and then you will have an audience of the character you want. You are not going to impress the children very much with this missionary work. These talks must be given to the teachers and children of the public schools and to the woman's clubs. It appears to me that the lecturer had better be sent to some communities only to appear before a woman's club and before school teachers. I think we will do the greatest good in that way. And when a lecturer goes to a certain community, what shall he discuss? He should first discuss all of the questions in reference to what has been done for public health, the great good that has been done by the medical profession. Why? First, because it is right; second, because it is policy. Tomorrow say, after the meeting is over, they are going to ask the family physician what he thinks of the talk given by the dentist, and if it was right. If you belittle medicine and try to increase the importance of dentistry, you lose; so then, tell the facts as they are, and cling to the truth as you should. Do not claim that 90 per cent of the people do not receive dental care unless you know it to be true. This statement has been printed and sent broadcast, but we don't know whether it is true or not. Let us inform the audience as to the things that are needful and instructive, and then leave our message with them. If they follow such a message, the teeth will be better cared for, and humanity will be better served, and the children's health and the health of the community generally will be improved by the message that dentistry has left.

Dr. E. F. Hazell, Springfield:

The question of oral hygiene has been covered so thoroughly by the president and those who have preceded me, that I feel very much like taking the President's address and holding it before you and saying, "Them 's my sentiments."

This movement has gone from ocean to ocean. It has been felt everywhere, to a certain extent, but in some places to a greater extent than in others. Cities with considerable population have followed it more or less vigorously. Other cities of less population have taken up this movement in a quiet but effective way. They are working along these lines.

About seventeen years ago this topic was brought to my attention by one of my confreres. It was dear to his heart at that time, and I think still is. He has been using every opportunity to bring the matter before the proper authorities in our community. The sentiment expressed by the President in his address with reference to our local board of health is what we are aiming to do in our locality. Dr. Palmer said the board would aim to take this matter up in April. But it has not been taken up as yet; they have been busy with questions confronting them along other lines, and, as Dr, Bentley has intimated, waves of reform move slowly. We have been very busy with the topic of tuberculosis the past winter in our locality. We have formed a tuberculosis society, or club. We have succeeded in opening a free dispensary where the poor, who are afflicted with tuberculosis, can receive treatment. We have also added a visiting nurse to go to the homes of the people who are unable to come to the dispensary for treatment. This has taken up some of our time and money in our locality.

The matter of public education in dental hygiene can be accomplished most effectively through the mothers' clubs of the schools, through the teachers in the schools, and the women's clubs of the local community. It is the mothers, after all, who look after the children, who watch them daily, looking after their morning toilet, and seeing to every need. Nine times out of ten the fathers give little or no attention to these things; and, therefore, the mothers are the ones to whom these things should be brought. Great interest is being created in the wards of our city by the mothers' club, and they are agitating very vigorously the physical examination of school children. One woman, who recently moved from St. Louis to Springfield, intimated to us that we were far behind in this work; the city of St. Louis, she said, had put into practice the physical examination of school children for twenty years.

Dr. Bentley touched upon the closer relationship of our two professions and the aid which might be had by associating ourselves in a certain sense more closely with the medical profession. There took place in the city of Springfield the past winter, a joint meeting between the Sangamon County Medical Society and the Sangamon-Menard Dental Society, at which Dr. Logan of our state society and Dr. Prothero were present to represent the dental end of it at the banquet and the toasts which were given afterward, and Dr. Arthur Prince and other physicians represented the medical end of it. It was a surprise to everybody who attended that meeting, and especially to our medical brethren. They had no idea the dental profession of this state was organized as it is and was carrying on the work it is. It is by means of that closer relationship, I believe, that something will be accomplished. Dr. Logan wisely stated it would not do to belittle the medical end of it, as people after hearing these lectures by dentists will go to their homes and consult their family physicians. They want to know if what the dentists say is right, and should they do thus and so?

Those of you who had the pleasure of attending the banquet, which was given in honor of Dr. Black, of Chicago, will recall the speech made by Dr. Evans, the Health Commissioner of the city of Chicago, in which he made some astonishing statements, based upon statistics which he had secured throughout the city of Chicago and elsewhere, about the condition of the mouths of children. There is no question but what the mouths of the children today need attention, especially those of the poorer classes. We all have them brought to us, and it has been shown very clearly just what the ill results are from lack of care and attention to these mouths.

I heartily endorse everything that has been brought forward by our President.

Dr. C. B. Warner, Urbana:

When the program committee asked me to take part in the discussion on the President's address, they mentioned the fact that the experience I was having might be of advantage in discussing this address; as Kipling says, "that 's another story." But I take inspiration from the admirable address that has been given to us.

First, I want to congratulate this Society on having such an address presented at this time, because the subject-matter is opportune this year, and I do not know how the subject could have been handled in a better and more comprehensive way than the manner in which he has prepared it and treated it.

This evolution of dentistry, it strikes me, has been timely and very fortunate. Up to the present time we have concerned ourselves mostly with the science and art of dental operations until we have arrived at the stage where we are able to take care of the mouths of the people, and we understand the conditions of oral hygiene. Having arrived at that stage, we are going forward to do our work for the public in a better way than we have ever done before, and it is only right that we should do so and discover such means as we can work out and bring them before the people.

I agree with what our President has said and with those who have taken part in the discussion, that great emphasis in reference to oral hygiene work in this publicity movement should center upon the fact that the children's teeth should be examined. All these other publicity movements we have are subsidiary to the main idea. The examination of the children's teeth in the public schools is the one thing we must keep prominently before our minds. The committee of which I am a member can conduct a public campaign through the newspapers, but that is only a subsidiary idea. The value of conducting a newspaper campaign is this: when the scholar goes to school, has his teeth examined, and brings home the chart for the parents to look at, they may become impressed with the value of dental operations or may not. On the other hand, if through lectures and newspaper articles and stereopticon views we can demonstrate to the parents the necessity of having the children's teeth taken care of, the children will be sent to the dentist, and will be taken care of, and in this way we can make examinations in the public schools effective.

As regards examinations of children in the public schools, I want to put stress upon the local society for this work. You cannot expect a committee of a general society to undertake the work, and do it thoroughly. I have found that out from experience. The only people who can do effective work in a certain community are those who are on the ground, understand all the conditions, and are willing to work. A very good opening wedge in this movement for the examination of the children's teeth is to attend the public talks given to the school teachers. In nearly every community the board of education requires that the school teachers shall have a public talk once a month, sometimes twice a month, and if the local society is alive and up to date, they can generally secure a talk on dental subjects before the school teachers. It is a good way to open up the whole discussion. In the society to which I belong we had within the last two weeks a talk before school teachers on the care of the teeth. Something like sixty school teachers attended that talk and listened to it attentively. In a great many cities the public schools are provided with visiting nurses, and the result in this instance I speak of was that the visiting nurse for the city of Champaign became very much interested in the care of the teeth of the school children. She did not know what should be done about the mouths of the children, as she had not received any instruction. I am happy to say that the Twin City Dental Club supplied her with the proper paraphernalia—mouth mirror, tweezers, probe, explorer, etc.—so that she could make an examination of the mouths of the children preparatory to a better examination which should be done by dentists under proper supervision. I offer this suggestion to the dentists coming from different localities in order to start the movement.

The point has been brought out of delivering lectures to women's clubs and to mothers' clubs. The point is well taken and a very admirable one. There is only one flaw in the whole plan, and that is this: Most of the people I know of who attend these clubs are the ones who have their teeth and the teeth of their children attended to anyway, and while we cannot reiterate the subject too much, the people we most want to reach are those who do not attend women's clubs, and do not know the value of taking care of the teeth. In mapping out our campaign of education we should include all factors.

I am heartily in sympathy with what the president has said, and this society cannot do any better than to make this year a campaign in favor of public dental education, having in mind the one point very prominently, namely, examination of the children's teeth. (Applause.)

Dr. Arthur G. Smith, Peoria:

I happen to be a member of the Peoria School Board, and I want to say that school boards, as you encounter them, are among the shyest animals known to man. (Laughter.) You cannot get anything through a school board by any pressure whatsoever within the board. You can only get action by an overwhelming majority of public opinion outside.

Why don't we get at the inspection of the teeth of children in our public schools? Because we must do, first, the very thing that we are doing, by hammering and iteration, and reiteration; we must create, outside of our schools, in the minds of the public, a demand that the school boards do something, and then they will do it, and not a minute before.

An excellent point was made by Dr. Warner that in our women's clubs and teachers clubs we reach only very largely those who do not need dental inspection. That is true; but lots of things in this world soak *down,* and mighty few of them soak *up.* (Laughter and applause.) And the thing we want to do is to get this matter before the average household. We have got to get this thing started, so that every intelligent person in the community is a committee of one who is doing our work for us in spite of himself. He becomes saturated with it, and then he will get those people we cannot possibly reach. We cannot hope to reach the common people that we should reach, directly. We must reach them indirectly through Mrs. Jones and Mrs. Thompson, members of clubs, who in turn will talk to and educate the women who wash for them and scrub for them. That is one way of reaching parents of the poor children. Some of the people we try to reach may be the products of Russia, Poland or other countries that have gone through centuries of oppression, and their only safeguard is conservatism. When you try to do anything for a man who is the product of such an environment, the first question with him is, "Where does this fellow come in for doing this? Where does he get his pickings out of it?" My experience has been that we have got to reach people of the lower strata of society by a system of instruction capable of soaking down through the upper layers.

Dr. E. H. Allen, Freeport:

I want to thank the President for the many excellent things he gave us in his address, and particularly for what he said with regard to this great subject of dental education of the public.

The remarks of Dr. Smith brought me to my feet, as I wish to counteract an impression which he may have conveyed about boards of education. I was a member of the school board of Freeport, and not wishing to take another three-year term, I thought I would like to be president one year, but am not. (Laughter.) These boards are not all like the Peoria board. Some do not have to wait for pressure from without. The Board of Education of Freeport takes the initiative in the way of education on these popular subjects. An idea came to me last winter, I might say as an inspiration. Having displeased the president for some reason or other, he took me off from an important committee as chairman, and put me down at the foot of the list, on what was always considered the least important, the most insignificant, namely, chairman of the committee on entertainments. I thought it was time for that committee to get busy, and not wait until the end of the year to follow the principal of the high school and get ready for the annual commencement. I thought we would have some entertainments. I take it, it is the province and duty of boards of education to provide for lectures on public questions, to educate public sentiment. Therefore, I asked the Board of Education the privilege of providing a series of entertainments periodically through the winter, and they said, "all right; go ahead."

I made an effort to get Dr. W. A. Evans, of Chicago, last fall to give us a lecture on general health matters, and the sanitary surroundings of the home in connection with the children. Dr. Evans recommended Charles P. Ball, chief of the bureau of sanitation of Chicago, and said he was a good talker. Well, I made another effort to get Dr. Evans, but he replied that "the human machine can do just so much," and that he had reached the limit. Then I accepted Mr. Ball, and he suited his remarks to the particular audience. He took from his slides the ones he did not want to have shown. The high school has an excellent stereopticon, and we had everything ready for him. We had some music by the club, which was very good, and then Mr. Ball lectured. Day laborers were there with their wives and children, all nationalities being represented. The superintendent of the school and I got together and we outlined the course to be followed. Admission was by tickets, and these were free and were distributed by the teachers of each school to the children, and the children were asked how many in the family would likely go, the tickets being given accordingly. The mere fact that we issued tickets impressed the people they were going to hear something worth while. Mr. Ball talked to about eight hundred people, including children. The woman's club was not very well represented, because they are *the people* of the town. The class of people we need to impress with the importance of this work are the parents and children of the working classes.

At a subsequent time we had a dental lecture. The teachers worked up public sentiment, and the only reason we did not have eight hundred as an audience was because we had to restrict the number of seats. The Board of Education fell in line with us in this movement. They paid all expenses, including the lecturer and his expenses. The expense was a little over eight dollars a meeting. That was the way we worked up sentiment.

Next month, or in July, we are going before the Board of Education and ask for the privilege of examining the children's teeth, and we think it will be given, as we have got the board educated up to it.

Dr. Grafton Munroe, Springfield:

Dr. Gallie has given us an address which, I think, is one of the most timely we have ever listened to.

A number of years ago I presented to the Illinois State Dental Society a paper with the title, "Our Younger Patients." In that paper I predicted that the time was not far distant when the examination of children's teeth in the public schools would be just as imperative as vaccination. The time is arriving, and I am happy to say that in Springfield at the last meeting of our school board preparations were made to have a medical inspector for the school children. It was my privilege to talk with the superintendent of schools, and I spoke to him of the importance of having the medical inspector or nurse acquainted with the requirements along dental lines, not to magnify the importance of dentistry or to belittle medicine, but I simply impressed upon him the importance of the qualifications necessary that a medical inspector should have.

The president spoke of the visits to the component societies of men to lecture on the subjects of oral hygiene and prophylaxis, and it occurred to me that the matter of expense might be limited by using our own society members in neighboring localities. While we all appreciate the advantages we have had from those who have come to us from the larger field of work, the city of Chicago, the matter of expense has been considerable, but our neighboring societies have men in them that by visiting the neighboring cities would minimize the expense and accomplish much good. For instance, if the Springfield component society attempted to stick to its own local focus, the aspersion of advertising might be cast upon some of the men who were put forward, but if we could have a man or men from Decatur or Bloomington come and speak to some gathering and some Springfield men could go to those cities the expense would not be so great, and we would accomplish quite as much good.

One of the things that appealed to me was that about the tooth brush. My patients always ask me what sort of tooth brush they should have. If this society had under its inspection the manufacture of a proper tooth brush, and tooth powder endorsed by it, we would accomplish much good for every community in which we scatter this information.

Dr. C. M. Meade, Carmi:

I want to congratulate the society on having the right man behind the gun at the right time.

I want to correct a statement made by Dr. Bentley, that nothing is being done. I think he is misinformed on that subject. There are things being done along this line. Twelve years ago this question was taken up in the county where I live, and the work was begun in the schools, but it was dropped because of lack of cooperation in the profession, not on account of the school board, because the school board granted everything that was asked for. It has been taken up again and blanks were printed eight weeks ago, and the dental inspection in the schools would have been started were it not for one dentist. This lack of co-operation is due to dentists, and not to the public. That is the point. When this pressure is brought to bear and dentists realize the importance of it, the school boards will act promptly. The school board of Carmi gave all that was asked for.

DR. ARTHUR D. BLACK, Chicago: I wonder if any of us, even, possibly, the president himself, appreciates the magnitude of all the suggestions that he has brought to us in this address? In the first place it is suggested that we get in touch with the state board of health; that a member of our society should be a member of that board. In addition, it is suggested that we should have a member on the state board of education, in order to put their approval on anything we wanted to do. In the next place, we are to get in touch with the city superintendents and teachers of schools to co-operate with us in this work; that through these agencies we are to have lectures delivered in the normal schools and at all meetings of teachers' associations in the state. It is suggested that we keep in close association with the Federation of Women's Clubs, and give lectures all over to women's clubs, so that the information may soak down from them to those below, and that in addition to this, we should get in closer touch with the state medical association to get more help from them and get their backing in all work of this kind we wish to do. Again, it is suggested that we should publish a series of articles in the public press. These have been arranged for the coming year; that we are going to follow this up with the examination of the teeth of the school children in the state, and following that we are to establish free clinics to take care of the teeth of children who cannot afford to pay. There has been enough work outlined to keep every member of the society busy, if he did not have to practice dentistry for a living at all. Before Dr. Bentley was born, state societies tried hard to do all these things, but they have not accomplished much of anything because of trying to do too many things. We have not had the least system in any of this work we have attempted to do. We have half a dozen different methods of handling one or another phase of this work without the proper guidance that would lead us to the results we ought to get. While we cannot help telling where Illinois stands in reference to this work, as a matter of fact we have accomplished more this year under the work of Dr.

Warner's committee than by any other one committee in the state engaged in this work, for the reason that no other committee has had a single definite aim like that. What we need most is system to handle this work.

One other thing; we need to know more about oral hygiene ourselves. (Applause.) How many of us know what we ought to teach along this whole line? I believe mighty few of us. How many of us take proper care of the mouths of our own children? I believe mighty few of us do. If the members of the society are going to accomplish anything, we must begin at home, begin with ourselves on a knowledge of this work.

I would not worry about the finances in connection with this or any other proposition if we know definitely what we want to do. If more money is needed by the members, it will be forthcoming whenever they realize there is proper need for it. I would not agree with Dr. Logan that we do not need more money. I would cite as one instance the work of Dr. Warner's committee. That committee is self-supporting because he has raised money to carry on the work. I venture to say, Dr. Warner has spent more energy in the raising of the money, than he has in carrying on the work itself. Why should we all sit back and cause him to worry about getting money when his principal business is to spend it? We ought to have some adequate arrangements by which these committees should be supplied with the money they need. Through our Secretary, or through the establishment of some kind of commission the financial end of this matter should be handled aside from the other aspects of it.

The establishment of free dental clinics is an important proposition, but I cannot help being fearful that we are not beginning at the right end of this work. I tell you, it is going to do the dental profession more harm than good to persuade a lot of people to have work done and not be able to take care of it properly after. I want to utter a word of caution along that line, and emphasize the point, that we ourselves should know more about this whole proposition of oral hygiene; that we should study it, and my suggestion is that we could not do better than to concentrate our attention on the post-graduate course and make that study the course in oral hygiene, carrying that to every local dental society, and then we will be in a position to teach the public.

Dr. Thomas L. Gilmer, Chicago:

I wish to congratulate the society on the very excellent address given by our President. He is a good Scotchman and as Scotchmen generally do, he has "made good," in his treatment of the subjects he has discussed.

He has very properly gone outside of the mechanical side of our calling and treated subjects of live interest to us all. In saying this I do not wish to be understood as belittling the mechanical side of dentistry, as no one realizes more than I that this side is and must always be a large and valuable part of dentistry; however, it is not all of it by any means.

It seems strange that we have not realized sooner the importance of the subjects mainly discussed by our President. The propaganda in the interest of the mouths and teeth of the young is in the right direction and must be helpful to mankind physically, and to dentistry incidently. When we realize what effect diseased teeth and the pathological conditions resulting from them have on the human system, we will take active means for the betterment of the prevailing conditions.

The medical men are awakening to the needs of a better prophylaxis of the mouth and teeth. They are finding out that many of the ills of mankind are due to unhygienic, diseased oral conditions. It is up to us to see to it that the people are better educated along these lines. To the parent a "gum boil" is a small matter, we know that alveolar abscess in the child's mouth is a serious matter. Pus coming daily in contact with granulating surfaces means absorption of toxins which may result in serious physical disarrangement.

Those who have the important duty of examining school children's mouths should not only look for cavities in teeth, but they should be sufficiently well versed in pathology of the mouth to recognize diseases of all kinds and report them to the parents. Our examining force should be sufficiently large, not only to examine the public school children, but those of parochial schools as well, as there is a large class of these.

In addition to what Dr. Black has said regarding the study of oral prophylaxis in our post-graduate work, we should include oral pathology, the two should be combined.

The committee on closer relations with the medical profession has done practically nothing, since it has been waiting for the medical men to take the lead. We should not wait longer, but at once take active measures to co-operate with medical societies for the betterment of both.

Dr. C. R. E. Koch, Chicago:

I was greatly gratified in listening to the comprehensive address of the President and to see that the world is progressing. But the remarks of the President and the discussion have reminded me of the farmer who was imbued with the idea that there was better farm land in the other county, or in the other state, and he neglected his farm for an entire year and traveled about looking for better lands to till and better crops to raise. He came back and concluded that the best thing he could do was to till his own farm and improve better his own soil.

We have heard of what is being done in Germany and other countries. As a matter of fact, in Germany there are, as I have recently learned, a great many cities of five thousand and more inhabitants that have no dentist, as we understand that term. The records show that those who pay attention to the teeth in these places are a sort of barbers or mechanics which have no right to use the title of dental surgeon. We find that a great many schools are being served by examiners, and even by having dental offices established in the schools. The city of Strassburg established such a clinic in 1887. In Frankfort-on-the-Main there is a public tax established or set apart for that purpose, but we are without any information as to what the service is that is given to the children. We imagine a whole lot about it, but they are not so far ahead of us, and do not begin to give as good service as we are giving today.

Attention has been called to the recent act of New Jersey, which is another instance of better land in the other state. I do not believe there is a state in the Union that has a better dental law than Illinois, and our law has received hearty support from the chief executive of the state—Governor Deneen. (Applause.) Furthermore, I want to say, that Governor Charles S. Deneen has done just as much for the dental profession as Woodrow Wilson has done or ever will. (Applause.) He is thoroughly aroused. We have a dental board in this state of his creation. I do not know that any one will say that any state has a better board than Illinois. The Governor has supported the board in anything its representatives have asked for, but he does not assume to be the Legislature of this state. We have a trinity of government, and Charles S. Deneen has never assumed to be more than an executive governor.

I want to call your attention to another recommendation, which would be an admirable one if it were possible to carry it out —and I am not prepared to say that it is not possible—and that is, the appointment of a dentist on the State Board of Health. The State Board of Health is created by an Act of the Legislature, just the same as the state dental board, and it is impossible to achieve the object of this recommendation under the laws which exist, although the support of the legislative committee will be loyally given to an endorsement of this recommendation under the direction of the state society. There have been things *doing* in Illinois, and even in Chicago, not as much as there ought to have been perhaps, but we are progressing, and my suggestion would be that if each of us will forget about the other county and other state and till the soil at home, we will bring about results still better than to stop to see what the other people are doing.

In Chicago the visiting school nurses are doing a good deal of work. I can only speak for Northwestern University Dental School; every Saturday the visiting nurse brings a number of children to our clinic for care and treatment, so that they are not entirely neglected. That has not gone to the extent it should, but I hope the indigent school children will not become a charge upon the dental schools, because they would not be able to take care of them and give the students the education with all classes of patients which they so much need. The work is going on all right, however.

One other point with reference to carrying on public dental clinics. I am not a pessimist, but I have no idea that the public dental clinic served by a dental society voluntarily by the assignment of its members, some to work on Monday afternoon, others on Thursday afternoon, etc., is going to work out permanently as a success. It will do very well as long as it is a new thing, but those who are charitably inclined and willing to perform this duty will find more pressing duties in their home offices which will force them to abandon this public work, and in consequence there will be no service. I believe the time is coming, and it is not very far distant, when such clinics will be supported the same as other free clinics, with properly trained and fit internes, who shall receive a reasonable compensation for their services, and who will take that as a post-graduate course, and after having served a year or two, will make room for others, and so on. I am looking for that day, and I want to thank the President for speeding the day.

President Gallie (closing the discussion):

I thank you for the kindly interest with which you have received the suggestions contained in my address.

As regards the suggestions made by Dr. Logan as to the financial side of this undertaking, I will say that this Society in undertaking this movement has been fooling away time, and the time has come when we must deliver some goods. We have been groping and feeling our way, and it is high time that this society, with its 1,600 or more members, should do something, and we cannot do anything unless we have the money, with which to accomplish it.

Speaking about slides, we cannot get along with one lantern and a few slides, or one set of slides. We want several lanterns and several hundred slides, such as they have in Ontario. There they send a dozen men out to lecture, men who are members of component societies. The dentists of the town select a man to give the lecture, and he is furnished lantern and slides, particularly in the small towns where they cannot afford to have these things. That takes money. That is the way that I feel the great State of Illinois should carry on this work, but we cannot do much without money.

Another thing: many of the members have thought that inasmuch as we have a good sum of money in the treasury, it would be a fitting thing for this society to begin the preparations now for the celebration of its fiftieth anniversary three years hence. (Applause.) This is just a suggestion. Let us look forward to making it such a celebration that its influence will be felt throughout the world, even though it may take all of the money we can gather. I don't believe in depleting the treasury.

I don't believe in a free dental clinic, nor in encouraging pauperism and charity, and that is the least important part of this whole affair. Let us educate the children; educate the parents; get into the public schools and speak of the means necessary to carry this work into effect. Talk is cheap, but without providing some means to carry our advice into effect, we are not able to accomplish much.

The tooth brush is a most important problem. You know the effects of some of the tooth brushes that are used. They are an abomination; they do more harm than good. We ought to have some say about the tooth-brush.

Let us send men out to lecture to the people, and not wait for women's clubs to extend the invitation. We should go to them, because we have a message to deliver. All this requires work. I am Scotch, and I look to the economic side of every question, and I agree with Dr. Logan that if we can carry on this great work without raising the dues, or asking for special or voluntary contributions, let us do so. But remember, we have a duty to perform, and the people are expecting it. It is in the air, and we have got to assume the responsibility, no matter how much money, time or energy it takes.

CHICAGO DENTAL SOCIETY.

A regular meeting was held February 21, 1911, with Dr. Frank H. Zinn, in the chair.

The subject for the evening was a symposium on pyorrhea alveolaris.

Papers were read as follows:

1. "Etiology and Instrumentation," by Dr. John D. Patterson, Kansas City, Missouri.
2. "Prophylaxis in Pyorrhea Alveolaris," by Dr. Cyrus M. Wright, Cincinnati, Ohio.
3. "Diagnosis and Treatment of Pyorrhea Alveolaris," by Dr. William H. G. Logan, Chicago.

DISCUSSION.

Dr. G. V. Black was called upon to open the discussion. He said: Mr. President and Gentlemen: There is more disagreement over the question of pyorrhea alveolaris than any other subject that is presented to the profession today; but if we discuss it long enough, I have no doubt that finally we will agree on the question, not in my own day perhaps, but in the days to come.

There is this to be said about it: if we have an acute alveolar abscess, we will within a few days see the beginning, the full development and the end of that difficulty, or we will see it fall into the chronic stage in which it may remain about the same for years. We may study the symptoms and make out the pathology of the acute form with great certainty. Take a case of typhoid fever. We have the beginning, and the full development, if you please, and the final result, whether it be death or recovery within less than a month's time. We are able to study the symptoms and the progress of the disease, all being bunched close together. This is so with very many of the diseases with which we have to deal; but with this condition we are discussing tonight the progress is scattered over years, and more often than otherwise, the same dentist does not follow it through all these years. I have seen these cases; I have followed some of them for twenty years myself. I have lost sight of a great many of them; I did not know what became of them; I do not know whether they got well or whether all of their teeth had dropped out—most likely the latter. Now, in connection with this I want to commend particularly the keeping of records suggested by Dr. Logan this evening. We will never make this out until dentists generally are keeping close and careful records of everything that is seen, and these records should be laid on his table by his assistant every time a patient who has been treated returns, after having been absent for some little time, in order that he may be sure to see and know what the conditions were when he saw the patient before. I know something of the value of this because I had my records of each patient laid on my table by my assistant for years. They were laid there for me to see what had been the condition and what had been done before for that patient. It is the only way to study disease clinically, and we will never know disease until we have studied it in that way.

I should differ very materially from much that has been said here tonight. Many of the things that have been said I would commend. Dr. Patterson made a better statement than has been made by many writers on this subject. Dr. Logan has also made some practical statements. Some things I can commend very highly, but other statements I think have been wrong, very wrong, and this I want to say. I am surprised and have been for years every time almost I take up a journal and read on this subject, that dentists do not recognize the beginning of the trouble. There must be a pus pocket before there is pus-pocket calculus. There must be a pus pocket which existed some time before calculus was deposited in the pus pocket.

Now, I would differ very radically with Dr. Patterson in his statement that ninety-five per cent of his cases occur from calcific deposits. I should say, on the other hand, that from sixty to seventy-five per cent of the cases occur without deposit of calculus in the inception. They may be complicated with it afterwards, but in the inception they are generally not produced by calculus. We have a calcic inflammation, an inflammation from calculus, but it is not generally a pus pocket disease. From serumal calculus we do sometimes get pus pockets, but very rarely do we get pus pockets from deposits of salivary deposits.

I recognize three forms of calculus, not because they are different intrinsically, but because they are formed in different locations. They are salivary calculus, serumal calculus and pus-pocket calculus. The names are simply descriptive of the places where they occur. They are different in form, different in color, and different in certain characteristics, but they are all calculi formed from a precipitate of calcium salts from the secretions. These exist in the blood; they exist in the secretions; they exist everywhere within the economy, and all of these calculi are formed from precipitates that are united by an agglutinating substance. Previously I had thought serumal calculus was a different order of calculus because it appears so different, but recently I have been able to make sections and I find the construction of the calculus is the same, no matter where it comes from. It is all alike, except it is different in form, different in hardness, and different in other characteristics.

As to calculus, there are agents which probably will limit its ravages very materially. I have not felt afraid of calculus among people who could be induced to take proper care of their teeth for a long time, because it is easy to keep the teeth free from calculus, but to do it the patients must be taken into training. They must be taken into training in keeping it off.

Now, I think I will say a word or two about the deposit of calculus. I have gotten hold of some things within the last few years, and more very recently on this subject of salivary calculus, until I have control of calculus formation, so far as I am personally concerned, at any rate. I can have calculus tomorrow on my teeth if I wish, or I will not have calculus for a whole year if I wish, and it is perfectly easy to control. It is controlled entirely by the diet. Perhaps I should not use the word diet. It is controlled by the amount of food taken, pure and simple, and without any starvation either. I wish there were hundreds of men going through the same processes that I have been going through recently on that point. If you have a bad case of deposit of calculus, let the patient limit his food, and where there is a certain reasonable limitation to it, the deposit of calculus will cease. If you have a deposit of calculus that you wish to cure quick, stop at once, give a dose of epsom salts, and it will be stopped within six hours. Various other propositions of that kind might be discussed, but I do not want to discuss this subject at length. A thing I would like every man to do, every dentist who wears an artificial denture, would be to clean that denture every time he eats by throwng it into a bowl of running water. He will find there will be spots on the buccal surface of the plate that do not clean, while all of the rest of the plate will clean perfectly in running water. There will be certain spots opposite the ducts which will remain greasy, look as though it had been varnished—and in putting the finger on it it will be a little sticky. There a globulin has been deposited, the necessary forerunner of the deposit of calculus. It must always be deposited first because the calcium salts, if precipitated from the saliva, will pass away unless there is something to stick the particles together, and if this sticky spot remains long you will find it getting white by calcium salts sticking in it and becoming deposited in it. This is the beginning of the deposit of calculus. You can brush that away with any ordinary brush and water; you do not need anything else. You can brush it away today, and clean the plate perfectly and see how it is tomorrow. See how it is the next time, and do this twice a day every day, and your eyes will be opened pretty wide very soon regarding the deposit of calculus. You may have a deposit that will cover half of the plate within twelve hours, or you may not have calculus deposited at all for five or six months, three months, and so on. In a few instances I have seen a plate almost entirely covered within twelve hours, so that if you threw it into a bowl of boiling water it would appear as white as a piece of paper. Of course that is rare. Within the last few years I have been watching my own plate in that way continually. It will give you a different conception from what you had as to the deposit of calculus if you wear artificial teeth. A little piece of vulcanized rubber attached to a molar tooth, so that you can take it off and examine it, will do this trick for any one. You will find that this deposit is the strangest disposition you can conceive of until you study the food habit in connection with it. The fact is simply this as it appears to me: When one takes too much food, the stomach does its work all right, and there is too much chyle thrown into the blood to be properly appropriated, and there is faulty metabolism on account of it, and that gives rise to this particular product, which is one of the products of faulty metabolism and it is secreted by the saliva, but if you give a dose of epsom salts it goes off another way and does not ocur in the saliva. If you reduce the food to that which the individual can properly take care of, you will not have any of it. That is all there is to it, and it is a thing we ought to be able to control.

Now, there may be very many things about that which I do not know yet, and many things still to be learned about it. That is the reason I want a lot of men to study it as soon as the first plans can be formulated and put into print that seem to be a sufficient basis for the beginning of that kind of study by our profession in general.

As to the treatment of this condition, the important thing is to keep the calculus off. That is all. But the injuries that occur are a different proposition from the formation of pus pockets, and we will have plenty of pyorrhea alveolaris after we have conquered the deposit of calculus. The main portion of that disease occurs from injuries that seem trivial in character. A piece of sliver from an infected toothpick is thrust into the gum; a little suppuration comes from it; it breaks the attachment at the gingivae and a pus pocket is the result, or the contact points of a person thirty or forty years old become worn, food crowds between them and is held and forced into the septal gingivae, or the gum septum, until suppuration results. The attachment at the gingival margin is broken by the suppuration, a pus pocket results, and pretty soon irritation spreads, other contacts are loosened, and it spreads to other teeth. This continues until the whole occlusion is in a jumble. This requires years in some instances for its performance, and it is only after a number of these are formed that it is usually recognized, and then it is complicated with calculus most certainly. At any rate, it is most generally complicated with calculus, but has not had its origin in calcific deposit. Sixty or seventy-five per cent of the cases occur in this way, and not by the deposit of calculus. Generally the calcific disease will get well if you remove the calculus.

It was my habit for a good many years to take charge of these patients, not by continually treating them, as that was not my object, but to drill them in the processes of cleaning the teeth and helping them over the rough points they failed to clean, pointed them out and urged them to clean and keep on cleaning their teeth. In bad cases I told my patients that wherever the gums were much injured, they were never to be discharged as cured. These patients must come as often as you see fit, not necessarily for treatment, but to see that they are keeping up the processes of cleaning properly, and in this way we succeed in stimulating them to keep at this work. When I quit practice I had a group of patients with whom I was doing this very thing. They went to other dentists. They were not stimulated in the cleaning process, and in five years they had artificial teeth. They were doing very well before. It is the only way to hold these cases in line, namely, to keep continually at it, and the only way to prevent the development of such cases is to catch up every point of irritation about the gingivae immediately. The first thing a man should do to a patient who has been away for some time, no matter how healthy they have been, when they come back to him, is to look over the gingivae carefully and cautiously and see that there are no irritations; do it right there and then, and catch all these things in their inception and stop the progress of disease. There are practitioners here who will deny that their patients have pyorrhea; they say that it is unnecessary, they do not allow their patients to develop this trouble.

That is all I have to say, all I think I should say. Perhaps I have said too much. I hope that we will keep records, that we will study these minor diseases, these minor points of irritation, and watch their development and determine the facts for the future, and I hope we may be able to control in large degree the deposits of salivary calculus before very many more years have passed.

Dr. Patterson (closing the discussion on his part):

I have very little to add for fear I should repeat something I have already said. A great many things have come up while my friend Dr. Black was speaking. We cannot all agree as to our clinical observations, and even though we see the same patients we may disagree, and while perhaps my statement with regard to ninety-five per cent of the cases being caused by calcic deposits was a little overdrawn, still I have admitted in my writings that that was not the only irritation which caused the commencement of the trouble at the gingival border, but I can speak from experience, and I have kept records and they have been valuable to me, and one of the things these records have shown me has resulted in the statement I made. All but about five per cent of the hundreds of cases I have ever seen, after I began to keep records, I could determine were from the irritation from calcic deposits.

I wish we had more time at our disposal so that a general discussion might have brought out a great many points.

I have been very much interested in what Dr. Black had to say with reference to the diet in controlling the deposition of salivary calculus. I have no question about it in my own mind. I have now under treatment some patients who I am sure would be benefited if they would only live on a restricted diet and not over-eat; but you and I know very well how difficult it is for patients who over-eat habitually, and have done so all their lives, to restrict their diet, and the patients who come to us for the treatment of pyorrhea alveolaris are those whose habits have been formed a long time and it is hard to break them. They will not stop over-eating. People who are fleshy will not stop eating even if they thought it would reduce their flesh. They will not deprive themselves of flesh-producing foods. I tell you, the over-eating habit is the worst habit this country has; I believe that most thoroughly.

I only want to say, in conclusion, that I am very glad to have been here. I feel greatly complimented in having been asked to come before you. I had something to say, and I came especially because, as I said in my paper, I see so much of patients who are sent to me after their teeth begin to drop out; their dentists have told them that the disease was incurable, that it was caused by systemic conditions, and they allowed these patients to go on until their teeth began to drop out and lose them. I have been preaching against the doctrine that these cases are systemic and incurable, and that is the reason I came up here more than anything else. I wish to thank you very much for the kindness with which you have listened to me, and when you ask me to come here again to talk to you on this or any other subject, I will gladly do so. I thank you very much, indeed. (Applause.)

DR. LOGAN (closing the discussion):

Dr. Black stated he was surprised at my statement that pus calculus can be formed without a pus pocket. I did not speak of pus calculus, neither did I recognize that we have such a deposit. I recognized serumal deposits and salivary deposits. I do not recognize that pus makes the deposit. I stated that serumal deposit occurred without the presence of pus, and I am willing to be interrogated on that point here and now.

DR. PATTERSON:

We can have a serumal deposit from a serous exudation.

DR. LOGAN:

It is believed that we can have it where there is no pericemental fiber destruction. It is found beneath the gingival upon the enamel with normal contacts, and there may not be any destruction of pericemental fiber. Dr. Patterson has told us in definite terms that he recognizes serumal deposit as the result of a previous injury. He recognizes we have a previous disturbance of the tissues in the parts before the serumal deposit forms, and I wish to add my statement to his findings. When I said that with or without the clinical evidence of pus formation pyorrhea existed, I said it for the reason that a patient will present himself when nature has for a day or for a week controlled the infection, but that is no sign the patient has not pyorrhea. Not at all, and if a man should tell you it was not pyorrhea unless you found a copious discharge of pus, he would not be telling you the truth as I see it. I feel that because now we have found that there is a systemic relation, definite and absolute, with the formation of salivary deposit, we are finding out that there is a relation between the irritations that cause tissue destruction of the supporting structures which is systemic. However, I agree with Dr. Patterson that we should not get it into our heads that the whole thing is systemic. But it is absolutely necessary to remove the inorganic and organic deposits found in the pocket, and if you do that you can save most of these teeth, providing your previous and subsequent treatment has been correct. Do not tell a patient that this cannot be done, because it can be done by men who are conscientious, hardworking, and have gradually developed the requisite skill. I believe that if you are going to stop the progress of this disease you must not only remove these deposits, but do many other things. I believe, as Dr. Patterson has said, that there is practically an inorganic deposit in ninety-five per cent of the cases that I treat; not salivary, but salivary and serumal. It may not be a large cake, but just a little island here and there.

THE DENTAL REVIEW.

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EDITORIAL.

THE CHILD'S WELFARE EXHIBIT.

In Chicago, May 11 to 25, 1911, a Child's Welfare Exhibit was held, in which was displayed all the various needs for reform in the raising of children and the most efficient means for bringing about these reforms. It was such an object lesson as has seldom been witnessed, and we predict that it will leave its impress on the citizens of Chicago for many a year. The total attendance was 416,848, and if the exhibit had been continued longer the ratio of attendance would have increased rapidly owing to the increasing interest. Near the end of the exhibit the crowds taxed the capacity of the big Coliseum where it was held to the utmost, and very many were disappointed when it was closed.

The feature of greatest interest to dentists was the model dental clinic similar to the ones in operation in the public schools of the city. This proved to be a very popular exhibit and attracted many people to it. In addition to the office equipment, illustrations and mottoes were hung on the walls emphasizing the benefits of properly caring for the mouth and teeth. Improvised jingles taken from nursery rhymes, but adapted to dental subjects, were printed on cards and distributed. Pamphlets on the care of the teeth were also given out, and the campaign was truly an educational one. One lady informed the writer that her little son had been more impressed by what he saw regarding the necessity for keeping the teeth clean than he had ever been before, after all the instruction of the writer and the constant admonition of the mother.

The dental exhibit was an object-lesson throughout, and was made more effective by the presence during the entire time of some volunteer explainer from the profession who made clear to the people all the significant factors connected with it.

Altogether the child's welfare exhibit will go down in the history of Chicago as one of the most beneficent enterprises ever inaugurated, and the far-reaching effects upon the future citizenship of the commonwealth cannot at the present time be accurately computed. It was a most inspiring spectacle illustrative of the best elements in our twentieth century philanthropy.

MERELY AN OVERSIGHT.

About six months ago a new dental journal, *Oral Hygiene,* was presented to the profession. It is published by C. L. Frame Dental Supply Co., and edited by our good friend Dr. George Edwin Hunt of Indianapolis. In the June number of this most excellent magazine the editor has a plaint. He says:

"Have you noticed the large, globular, dense wad of silence concerning *Oral Hygiene* in the majority of the more largely circulated dental monthlies? It has been truly uproarious in its intensity of absence. The *Dental Digest,* the *Dental Summary* and the *Dental Register* each had a notice of our appearance, but if the others are yet aware of it their columns are innocent of the knowledge. There has been an appalling inability to sense our existence that would seem to argue atrophy of the literary nerve on the part of their editors. Do you know why, gentle reader? 'There's a reason.' Lend me your ears. I'll give 'em back. St-t! It's because it comes to you free of cost. If you had to pay fifty cents, or a dollar, or two dollars before you could get it, all the 'big' journals would have given it editorial mention long ago."

Not so, George Edwin. So far as the DENTAL REVIEW is concerned, if you had charged fifty dollars a copy it would have been just the same. The free distribution of *Oral Hygiene* had nothing whatever to do with our failure to mention it. Neither did the fact that we wished to be unneighborly or unsociable. Nor were we envious. The simple fact is that it was pure carelessness on our part—just carelessness.

Now that you have wrung this acknowledgment from a willing reader we hope you are satisfied, and if the other delinquents "bite" as we have done you ought to be in the seventh heaven—wherever that is.

And while we are at it we should like to say that there is another new dental journal out, and a good one, too—*Oral Health*—published in Toronto, Canada, and edited by one of the best men in the profession, Dr. Wallace Seccombe. We welcome these two journals to our exchange list and trust that they may fulfill the high mission for which each was established. They are in able hands and deserve success.

PRACTICAL HINTS.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.]

Sticky Wax:—For holding clasps in place this is a good wax. Resin 2 parts, beeswax 1 part.—*J. H. Pearce, D. D. S., Peoria.*

Remove Iodin Spots:—A solution of hypo sulphite of sodium in water will remove iodin spots. Fresher the spots quicker the action.—*R. H. Daniels, D. D. D. S., Peoria, Ill.*

Porcelain Inlay for Cervical Cavities:—In those cases where a cervical cavity extends under the gum margin and particularly where there has been a recession of the gum resulting from the cavity, very often artistic results can be obtained by the addition of gum porcelain to the cervical portion of the inlay, thereby reproducing the original gum margin.—*E. S. Best, D. D. S., Minneapolis.*

To Adjust an Anterior Bridge With Inlay Abutments:—When soldering just tack the dummy teeth to the abutments with as little solder as possible and try in the mouth. If both inlays do not fit perfectly saw the abutment inlays partly off to allow bending. Place in mouth again and bend so as to get perfect placement of both inlays, remove, invest and solder and the bridge will go to place with no trouble.—*E. D. Coolidge, D. D. S., Chicago.*

Burnish Gold Inlay Margins:—I find that the margins of gold inlays are greatly improved by giving them a thorough burnishing after the cement has set for five minutes. Then grind them lightly with a small stone to remove any excess gold. The final finishing is done with a moose-hide disk and pumice. Sand paper disks are used when possible.—*O. DeForest Davis, D. D. S., Minneapolis.*

Maintain Asepsis:—Until every practitioner of dentistry fully realizes that the extraction of a tooth is a surgical operation which must be done with as much care, both as to the condition of the tissues operated upon as well as the hands of the operator and his instruments (having reference, of course, to asepsis), we shall have infection of the tissues, causing sloughing of the gums, necrosis of the bone, infection of the antrum of Highmore as well as the other sinuses of the head and that whole train of troubles, all the way from a slight local disturbance to a general septicemia and death.—*A. F. Rasmussen, D. D. S., La Crosse.*

constant pain of a low order with periods of intense pain suddenly occurring and lasting for a long period, then suddenly subsiding to again occur. Finally, after 24 to 48 hours, the pericementum becomes involved. (If the patient presents at the time of pericemental involvement, the case may be mistaken as an abscess arising from a putrescent condition of the pulp.)

The main diagnostic symptoms are the peculiar reactions to thermal stimuli, cold will relieve the pain while heat will increase. The taking of hot drinks, passing from cold to warm atmosphere will increase the pain, a sense of fullness will exist, and when the pulp is fully opened, pus will escape followed by blood.—*M. L. Schmitz, D. D. S., Chicago.*

Cocain for Pressure Anesthesia:—Cocain is obtained as an alkaloid from the leaves of the erythroxylin coca, and as an alkaloid is insoluble in water, but for medical purposes is used almost exclusively in the form of a hydrochlorate, the salt of which occurs as a crystaline powder, freely soluble in water or alcohol.

Cocain solutions are most unstable, and your work in pressure anesthesia will be much more satisfactory if a fresh solution is made for each operation as presented, especially avoiding the mixing of the solution with any instrument or point that has been boiled in soda solution to sterilize, as the introduction of an alkali would tend to render the cocain inert.

Cocain acts upon the nerve ends or fine nerve twigs, and if injected into a main nerve trunk will arrest both afferent and efferent impulses.—*E. R. Carpenter, D. D. S., Chicago.*

Dislocation of the Inferior Maxilla:—This is quite possible in an everyday practice, and while very simple and usually easily remedied, it is often extremely terrifying to the patient who is apt to associate the condition with tetanus. It may occur from inherent weakness of the muscles where they are kept on extreme tension for prolonged filling operations or in the taking of impressions. It is simple displacement of the condyloid process downward and forward until, in complete dislocation, it rests in front of the articular eminence.

In case the dislocation is bilateral it is advisable to reduce each side separately and this is usually readily accomplished by means of exerting strong force on the posterior teeth of the mandible, carrying it downward far enough to allow the process to pass the articular eminence and then backward until it drops to place.—*G. O. Webster, Berlin.*

Occlusion Plus Articulation No. 2:—The first consideration, after having obtained good models of the upper and lower jaw, is to establish the correct relation of one model to the other, and the correct relation of both models to the articulator joint, and also to have them in the proper plane between the bows of the articulator and the articulator joint.

We see from this that there are three positions to be considered in mounting models, and that the articulator to which they are mounted must be such as to reproduce the movements which the mandible would take in the process of mastication.

The fundamental principles of *Occlusion plus Articulation* are quite simple, when dissected of all theoretical explanations. Our one aim is simply to reproduce the conditions of the mouth on the articulator.

The practical side is as easy as the construction of a crown or bridge, but the theory is as complicated as the Nebular Hypothesis.

We shall next analyze the statement that three relationships must be established on the articulator to have models properly mounted.—*J. E. S.*

MEMORANDA.

CELEBRATION OF THE CHICAGO DENTAL SOCIETY.

The Chicago Dental Society has planned for an enormous two days' celebration January 22d and 23d. This will be the forty-eighth annual meeting of the society. We will have clinics on both days and papers by the best men obtainable on both evenings.

This society has attained a membership of almost 1,200, and we propose to make this one of the greatest celebrations we have ever attempted. Fred W. Gethro, Chairman Publicity Committee.

THE NATIONAL DENTAL ASSOCIATION

Will meet in Cleveland, O., July 25, 26, 27, 28, 1911. *Clinics*—Thursday and Friday mornings. Lake ride and Cleveland entertainment Friday afternoon and Oral Hygiene Conference Friday evening. *Special extra entertainment* for the ladies during the meeting hour. Entertainment for Saturday, and a lake excursion to Niagara Falls for Saturday night and Sunday. Those desiring to remain for Saturday and Sunday entertainment are requested to write the Local Committee of Arrangements for information.

Railroad Rates: A fare and a half granted by most of the Passenger Associations. Demand a Convention Certificate from the ticket agent, whether you wish to use it or not, and present it to the *Information Bureau.*

Hotels: Write the hotel of your choice for reservation. Do not fail to state the time you will arrive, the accommodations desired, and the price (see June Dental Journals).

Membership: Any member of a State Dental Association is eligible for membership upon certificate signed by the president and secretary of his society, and paying the fee of $5.00. Any reputable dentist, and his lady, will be welcome as a guest upon registering and receiving a guest badge. No fee. For information address Local Committee of Arrangements, National Dental Association, 718 Schofield Building, Cleveland, Ohio.

BANQUET TO DR. WILLIAM SMEDLEY.

On May 4th the Dental Profession of Colorado united to do honor to Dr. William Smedley at a testimonial banquet at the Brown Palace Hotel in Denver, upon the occasion of his seventy-fifth birthday. Something over 100 persons were present and it was an occasion that will long be remembered with keen satisfaction by those who attended.

The scriptural allotment of years has been more than passed by this splendid man and he is still fired by the same enthusiasm which in his younger days led him to the incorporation of the State Dental Association and also the Dental Society of the City of Denver, having served as the first President of both organizations. He is still active in the daily work of dental practice and is still serving as the Treasurer of the State Association, which office he has held consecutively for the past 21 years.

The words of esteem and tribute which were paid to him on that evening by the different speakers in response to the toasts could easily have brought embarrassment to the average mortal and yet in his "Goodnight" to us, we found the same modest unassuming nature wondering what he had done to deserve the tributes that had been laid at his feet.

A very interesting feature of the occasion was a series of lantern views showing the early scenes in Dr. Smedley's life and descriptive of a journey by ox team across the trackless plains before the days of railroads from the Missouri River to the northwestern Pacific coast, as well as some of the early scenes of Denver showing Dr. Smedley's first office locations.

As a more tangible expression of the sentiment of the evening Dr. Smedley was presented with a beautiful watch which, while measuring the passing of time, yet symbolizes with unvarying regularity the heart throbs of love of those who are privileged to call him friend and comrade.

RECENT PATENTS OF INTEREST TO DENTISTS.

971,274. Means for forming tooth-crowns, Fernando O. Jacques, Cranston, R. I.

971,382. Dental instrument, John L. Kelly, Chicago, Ill.

971,855. Dental casting-machine, William F. Lawrens, St. Louis, Mo.

971,913. Dental air-pump, Eduard Messmer, Gratz, Austria-Hungary.

972,759. Blowpipe, James H. Flower, Ashtabula, Ohio.

972,217. Foot-rest, Belle T. Neubecker, Niagara Falls, N. Y.

972,316. Preparing a tooth healing preparation, Josef Zehetner, Vienna, Austria-Hungary.

973,343. Denture, John C. Corcoran, St. Paul, Minn.

973,408. Dental apparatus, John C. Corcoran, St. Paul, Minn.

973,371. Adjustable head and back rest, Annie C. Miley, Philadelphia, Pa.

973,311. Tooth-brush holder, Ernest L. Smith, Bradford, Pa.

973,842. Composition toothpick, Albert H. Baird, Delta, Col.

973,957. Head rest, Omar F. Neff, Milford, Ind.

973,573. Dental cabinet, Samuel C. Sims, Sterling, Ill.

973,894. Dental instrument, Michael H. Tommey, Greenfield, Mass.

974,188. Head rest for chairs, Frank Ritter, Rochester, N. Y.

974,189. Valve mechanism for dental or other similar chairs, Frank Ritter, Rochester, N. Y.

975,205. Holder for dental floss, Charles F. Booth, Canandaigua, N. Y.

975,033. Dental impression cup, John H. Gummo, Waverly, Kans.

974,983. Molder's flask, Edward T. McHugh, Holyoke, Mass.

975,308. Fountain cuspidor, James D. Wilson, Webster Groves, Mo.

976,112. Jeweler's and dentist's burner, Abraham and C. Zarembowitz, New York, N. Y.

Copies of above patents may be obtained for fifteen cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

THE

DENTAL REVIEW.

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THE DIAGNOSIS OF DISEASES OF THE TOOTH PULP.*

BY HERMANN PRINZ, M. D., D.D.S., ST. LOUIS, MO., MARCH 7, 1911.

The correct diagnosis of a normal, a diseased, or a dead pulp *in situ* is always a matter of great difficulty and this difficulty is proportionately increased if the tooth under consideration does not present any visible signs of derangement or if the subjective pain as referred to by the patient is of an obscure nature. The antecedent history of the case and the character of the pain furnish most valuable diagnostic aids and especially pain, as subjectively expressed by the patient, is of great diagnostic importance. We should remember that pain is an expression of disease; it is the conscious manifestation of a morbid change within the nerve centers brought about by some form of irritation and it is always referred to the periphery. It is the monitor of approaching ills, the criterion of the intensity of the traumatic insult, and to its autocratic demands the most obstinate patient relentlessly has to submit. The varieties of pain may be clinically expressed as being of a boring, throbbing, fulgurating, lancinating or diffuse character, or by many other similes, such as gnawing, jumping, etc. Various physical tests—color, transluceny, conductivity of temperature, percussion sound, etc. are important adjuncts which are usually employed in combination with the previous named factors. If a deep carious defect is present in the tooth under consideration, the application of certain chemicals to the carious spot may furnish additional valuable diagnostic hints. The diagnostic value of these various tests is, to some extent at least, helpful in arriving at some possible conclusions, usually a diagnosis by exclusion, but these tests furnish no positive proof of the respective condition of the pulp. The discoloration of a tooth may be brought about directly by the various filling materials or indirectly by the formation of metallic salts or oxides, i. e. in amalgams, by recurrent caries under the filling or by leakage of the filling. The transillumination of a tooth by means of the electric mouth lamp may furnish a fairly reliable shadow picture of the living pulp; the picture is of a diffuse nature when a dead pulp is present. Owing to the natural size of the teeth, the anterior teeth are more easily transilluminated. In the bicuspids, and especially in the molars, the thick body of the tooth crowns prevents ready transillumination, and, as a consequence, the diagnostic value of the light rays is much reduced in such teeth. The transparency of a tooth may not be altered perceptibly by the death of its pulp. Transillumination of the oral structures should always be conducted in a darkened room, so as to itensify the shadow picture. The heat test is also serviceable but by no means absolute. Usually this test is made by placing a pellet of heated gutta percha, or some other material which is a poor conductor and which will retain heat for some time, on the surface of the suspected tooth. A diseased or a dead pulp does not respond in the same manner as a tooth with a normal pulp. By continuity, the heat rays often produce a response from the pericementum. The thickness of the tooth structure and the presence of the various filling materials may, according to their nature, increase or decrease the conductivity of heat. Walkoff makes the statement that the normal pulp will not react between 60° F. and 120° F. Pain produced by water below 90° F. indicates inflammation while pain produced above this temperature indicates the formation of pus. A most interesting exhibition of the thermal reactions of the pulp is given by Jack. (Louis Jack, American text book of Operative Dentistry, Second Edition.) He has shown that some individuals tolerate temperature changes (as applied to their teeth), between 32° F. to 75° F. below, and between 118° F. to 155° F. above the normal temperature of the body. Some persons will react painful between 75-77° F., while others will not complain even above 145° F. From this very wide range of responses it is but clear that temperature changes as a diagnostic aid in pulp diseases have their limitations. Tapping the tooth with an instrument is frequently employed. Percussion is best performed by striking the tooth with the butt end of a steel instrument, employing a sharp blow. The peculiar dullness of the resultant sound from a tooth with a purulent or a dead pulp as compared with that from a normal tooth can be distinctly discerned by the trained ear. The dullness of the sound is probably caused by inflammatory changes of the peridental membrane resulting from the diseased or dead pulp or from external causes. The infiltration and the thickness of the fibres change the relationship of the tooth to the alveolar bone, and consequently the sound waves produced by the tapping have not that full, clear tone which we perceive from a similar percussion of a tooth with a normal pulp and healthy pericementum. The application of a few drops of formaldehyde solution in a deep seated cavity, as suggested by Preiswerck, will bring forth a series of painful reactions which may be serviceable as diagnostic hints regarding the condition of the pulp. In very obscure cases the roentgenogram may furnish a fair shadow picture of pulp stones or similar concrete deposits. It requires a well trained eye to correctly interpret pictures of this nature, especially in the beginning one is apt to see things which are often imaginary. Within recent years, the electric current has been advocated as a means of diagnosing diseases of the pulp. The results obtained therewith are very gratifying and its use for such purposes deserves to be highly recommended.

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*Read before the St Louis Dental Society.

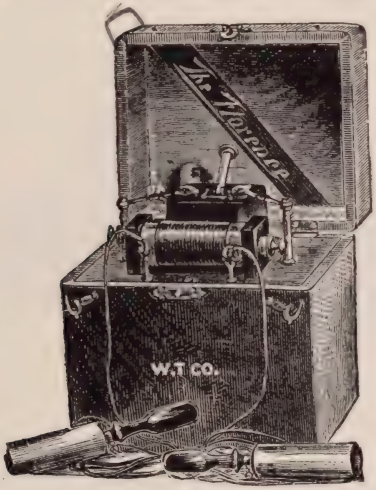

Fig. 1. Small Faradic Battery with Induction Coil and Core Shield.

Without entering into a discussion of the historical detail which we have fully set forth elsewhere, (Prinz: Dental Materia Medica and Therapeutics, St. Louis, Mo., 1909,) let us state that the kind of electric current best suited for our purposes is the combined faradic current, although the reduced direct current may be employed with equal success. The alternating current cannot be used for such work.

The faradic battery delivers an easily controlled current of minute quantity. Two forms of induction coils, in connection with the battery, are in general use for this purpose—the induction coil with a core shield (the tube of Duchenne), and the sledge induction coil of Du Boys-Reymond. The source of electricity for the smaller induction coil is usually received from a single dip battery, Fig. I. (acid potassium bichromate solution), or from a few ordinary dry cells, while the sledge induction coil may be fed from a series of batteries, or from the direct street current, which is reduced by a rheostat. The small transportable induction coil with one dip battery gives universal satisfaction for the purpose in view, and on account of its cheapness, simplicity, and easy transportation deserves to be recommended. Any other form of induction coil fed by a pair of dry cells is also serviceable.

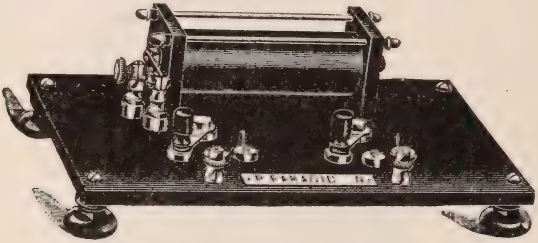

Fig. 2. Induction Coil with Core Shield (McIntosh).

The small faradic battery carries three binding posts and furnishes three definite currents—Fig. II. Posts 1 and 2 furnish the mild primary current, posts 2 and 3 furnish the more intense secondary current, while posts 1 and 3 furnish the strong combined current. The latter current is the one which is usually made use of for our purposes. The positive metallic electrode is held in the hand by the patient, while the negative pole carries the conducting cord, to which a specific dental electrode is attached. This dental electrode may consist of a piece of hard rubber or a glass tube in the form of a penholder, with a piece of German silver wire passing through its body. A socket is left at each end for the attachment of the conducting cord and the platinum point. Fig. III. The latter is slightly roughened to carry a small piece of wet cotton; it may be bent to any desired angle. The needle holder, with interrupter, for electrolysis, as used by the dermatologists and which may be procured from a surgical supply house, makes a most serviceable dental electrode for this work.

The action of the electric current on a sound tooth calls forth a definite sensation which is in accordance with the normal reaction of the patient to electric stimulation. The strength of the current needed for this purpose varies with the individual. The sensation manifests itself in a peculiar tingling sensation, but not in pain. This point of response is known as the irritation point. After having established the irritation point in the sound teeth of the patient, and after having expressed it in figures from the markings of the tube of Duchenne, it is a simple matter to distinguish the reaction of a diseased pulp from the reaction of a normal pulp. The following scheme may serve as a guide for making a diagnosis by means of the faradic current:

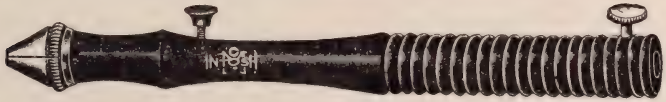

Fig. 3. Hard Rubber Electrode with Interrupter.

1. The normal pulp responds to the faradic current at the irritation point.

2. The irritated pulp responds very readily to the faradic current at the irritation point, or just silghtly below it.

3. The inflamed pulp responds to the faradic current below the normal irritation point. The more severe the inflammation, the more ready the response to the current.

4. The inflamed pulp with pus infiltration (abscess formation) responds to the faradic current above the normal irritation point. The more severe the purulent condition, the less ready the response to the current.

5. The dead pulp does not respond at all, not even to the full strength of the faradic current.

To illustrate this diagnostic scheme by figures as obtained from measurements with the tube of Duchenne, the following data may serve as examples:

	Degrees.	Diagnosis.
1. Upper central incisors	3.5	Normal irritation point.
2. First upper right bicuspid	3	Pulp irritation. (The tooth shows a slight carious defect.)
3. First lower right molar	1.5	Acute simple pulpitis. (The tooth shows a deep carious defect.)
4. Second lower left molar	7.5	Purulent pulpitis. (The tooth is apparently intact; it has a large compound amalgam filling.)
5. Second upper left bicuspid	No response.	Dead pulp. (The tooth has a large cement filling.)

The technique of applying the faradic current to the tooth.—The positive metallic hand electrode of the faradic battery is held by the patient, or a wet cork or felt electrode is fastened to his wrist. The negative pole carries the dental electrode, which is manipulated by the operator. The current is started at its lowest amperage—that is, the tube of Duchenne is completely pushed over the core, or the sledge is started at zero. The irritation point of the patient is now obtained by holding the dental electrode against any of the apparently sound teeth. The upper central incisors are preferably selected for this purpose. The wet cotton of the electrode is placed near the center of the labial surface of the incisor, but always away from any present filling. The tube is now gradually withdrawn until slight, but distinct, sensation is noticed by the patient. The sensation must never be expressed as pain. The number on the scale of the tube is read, and the same maneuver is repeated on the other incisor. The average of the two readings furnishes the irritation point of the patient under treatment. The average irritation point is not the same in every tooth and in every patient. A layer of thick enamel on a heavy body of dentin requires a stronger current and vice versa, and, consequently, the irritation point in the young is much lower than in older individuals. The condition of the nervous system of the patient may also influence the response to the current; a disturbed psyche is usually much more sensitive to electric stimulation than a normal condition. If the electrode is placed on or very close to a metallic filling in a vital tooth, the response is very pronounced, and even painful, as compared to the same amount of current passing through a tooth without a metallic filling. This is also true if the electrode is placed on a thin shell of enamel which covers a metallic filling. The severity of the shock depends on the size of the filling. All filling materials—gold, amalgam, or the cements, with the exception of gutta percha—are better electric conductors than enamel. The tooth under observation must be dry, and not in too close contact with its neighbors, as the current may switch to those teeth. The close proximity of large contour fillings or metallic crowns deserves special care. In such cases the rubber dam or strips of the dam placed between the adjacent teeth is necessary for isolation. The electrode must not be placed too near the gum line, or the gum tissue will react before the pulp is reached. The sensation felt on the gum is different from that in the pulp. It is not acute, but manifests itself as a tickling or crawling feeling. Devitalized teeth which carry fillings will also react if the electrode is placed on or near the filling; they will not react if the electrode is placed on sound enamel, provided that the root filling consists of gutta percha. If the root carries a metallic post, a prompt shock is felt from the current. If a present filling reaches the gum line, a very quick and painful response is experienced, even from a mild current, when placed in contact with the filling. The absence of enamel acts somewhat similar to the presence of a filling. A shock is usually produced when the current is placed on exposed dentin, which must therefore be avoided. A tooth with a dead pulp, but with a sound crown, will also react to the current if an acute pericementitis is present. Uusually, however, a somewhat stronger current is required than that which is necessary to establish the irritation point. In multirooted teeth the pulp may be dead in one canal and highly inflamed in another canal. In such cases a reaction similar to that obtained from purulent pulpitis is usually observed.

The examination of the pulp by means of the faradic current requires a thorough mastering of the many details connected therewith. The practitioner can best familiarize himself with the current by using his own battery and induction coil, and by testing the instruments on himself and on an experimental patient. The teeth, gums, lips, and tongue are the organs which should be preliminarily tested. Before testing a tooth for pulp disturbances, it is always advisable to establish, if possible, the irritation point in the corresponding sound tooth of the opposite side in the same jaw. The difference of the recorded figures furnishes the base for its diagnostic utilization. It is understood, of course, that no therapeutic measures have been previously applied to the teeth under consideration or to the general system; their presence would materially influence the reaction of the current.

Before entering into a detailed discussion of the clinical application of these diverse methods of examination, it is of interest to ask: What practical values are derived from a correct diagnosis of the various diseases of the pulp? Some operators make the authoritative statement, with slight modifications, that a pulp in an adult tooth that has been painful for a more or less prolonged period of hours should at once be killed without further consideration and they regard the diagnosis of the diseased condition of the pulp as being of no practical consequences. The opponents of such rash statements look more favorably on the conservative management of this delicate organ and to them the respective state of health of the pulp is of prime importance in regard to its further treatment.

Let us briefly reiterate what is generally understood by diagnosis. Its object is to enable one to recognize (a) the existing disease by a specific name, (b) the stage and the peculiarities of the disease and (c) the existing or the possible future danger. Applying this very principle to the recognition of the diseases of the pulp, we find that their correct interpretation is of the utmost importance in regard to the future preservation of the teeth. Each definite form of pulp diseases requires specific treatment for its amelioration, and unless we recognize this fact, we do not render the best services to our patients. The object of the practice of dentistry, considering it as a branch of the healing art, is to institute preventive measures, to relieve suffering and to cure disease. These purposes are not achieved by the haphazard utilization of a few stereotyped formulas; they are based on a thorough knowledge of pathology. To illustrate our contention in regard to the diagnosis of diseases of the pulp let us cite a few cases: Without having made a correct diagnosis, arsenic is placed upon a purulent pulp. Practically no results are obtained and the drug is made to carry the blame. Again, arsenic is placed upon a totally inflamed pulp; no correct diagnosis having been made, the result is that the patient will suffer untold agony. Again, the chemical is held responsible for it. A patient has presented himself with severe pain in an otherwise sound upper first molar. After a few routine applications of aconite and iodine are made without obtaining the desired results, it is now decided to kill the pulp with arsenic. Many visits of the patient are necessary and the obligate "painless killing" of the pulp turns out to be a barbaric joke and all this expenditure of time, nerve, force and money on account of inexcusable pathological ignorance of the practitioner. A diagnostic inquiry would have revealed the fact that the patient suffered from a severe attack of influenza, which, as a consequence, is prone to affect the soft dental tissues.

Regarding the division of the various diseases of the pulp, the nosology, quite a confusion is apparently existing in our current literature, even our text books, unfortunately, do not enter into a detailed discussion of this interesting subject. But, not alone this laxity of pathological inquiry is appalling to the searching student, he is also confronted with a gross neglect of correct pathological terminology. Hyperemia, inflammation and gangrene are the usual terms employed to designate all the types of pulp diseases. Inflammation is often referred to as a "disease," while it should be classified as a symptom of such. The collective term pulpitis is generally utilized to express all stages of inflammation of the pulp. And, again, pulp gangrene, a term which is utilized to cover all phases of dead pulp tissue, is referred to as a "disease," while, in reality, it is only the sequence of necrosis, viz.; the necrotic pulp is acted upon by specific micro-organisms which results in gangrene. It is but common sense that a "dead" pulp cannot become "diseased." Unfortunately, this same wrong conception of necrosis and gangrene is prevalent in many of the works on surgery.

From a purely pathological point of view, Arkoevy has probably presented the most subtle division of this subject. For clinical purposes, however, his division is too complicated. Many other classifications have been brought forward and among these we may cite the classic schemes of Rothman and of Black and those of Wedl, Abbott, Boedecker, Burchard, Roemer, Walkhoff, Hopwell-Smith, Colyer and others. To construct a system which answers all purposes equally well is largely a matter of personality. However, there are certain unalterable facts which must be utilized as a foundation for all classifications. Ordinarily, we refer to a sound, healthy pulp as a normal pulp. This very term needs some further explanation. The tooth pulp is a transitory organ; it possesses great resistant power on account of the absence of lymphatics and the tendency of readily depositing secondary dentin. Normally, with the completion of the tooth, its destination is accomplished and from that period on retrogressive changes take place within its own tissue which may, under suitable conditions, lead to complete atrophy or the many forms of degeneration. At another period, however, its activity as a constructive organ is called upon after the normal calcification of the tooth is accomplished; partially as a result of external stimulation for the purpose of protecting its own integrity by depositing secondary dentin and partially from some unknown factors of overstimulation resulting in the formation of pulp stones. Being a very vascular organ and richly supplied with nerve filaments, any disturbance of its integrity will manifest itself in the typical reaction of a tissue to an injury, viz: inflammation.

In the following scheme it has been our aim to formulate a classification of the diseases of the pulp from the view point of the clinical pathologist. Its object is to present a working basis for the *ultima ratio* of all clinical procedures; i. e. the application of rational therapeutic measures, in the broadest sense of the term, for the purpose of relieving disease.

Diagram of clinical diagnosis of diseases of the pulp.

1. Hyperemia.
2. Pulpitis.
    (a.) Acute pulpitis:
        (1.) Acute simple pulpitis.
        (2.) Acute purulent pulpitis.
    (b.) Chronic pulpitis:
        (1.) Chronic ulcerative pulpitis.
        (2.) Chronic hyperplastic pulpitis.
3. Necrosis and gangrene.

The various factors which are at our disposal, and which, as a whole, make up the diagnosis of a specific form of disease of the pulp depend almost entirely upon the antecedent history, the anamnesis, and its subjective symptoms. The history of the case under observation, including a fair conception of the kind of pain as subjectively expressed by the patient, and the objective examination of the present state are the usual preliminary steps in a diagnostic inquiry. The patient should be interrogated by a set of routine questions, as for example; Has the tooth ached? How long? Is the pain continuous or of a short duration? Does hot or cold water hurt? How about sweets when taken into the mouth? Is the tooth painful in closing the jaws? Does it feel longer than the others? Does the pain increase on lying down? If the tooth is filled, additional inquiries are necessary, viz.: Has the tooth been painful before the filling was placed? Did it pain during filling or soon thereafter? Was the "nerve" destroyed? Depending on specific conditions, as for instance, the presence of acute febrile diseases, especially malaria and influenza, or menstruation, gastation, etc., etc., other questions, of course, will suggest themselves.

Before relating the symptoms of pulp diseases it is probably not amiss at this moment to reiterate the various causes thereof. Without entering into a detailed description of these etiologic factors the simple depiction of a scheme, as outlined by the late Miller, has been extremely serviceable and when once permanently impressed upon the memory, materialy helps in arriving at some fixed conclusions which will be of paramount value as a diagnostic aid.

The causes of pulpitis.

Pulpitis	Primary	Causes of a mechanical nature.	Traumastism, abrasion, calcarious deposits in the pulp, fillings, direct or indirect, correction of irregularities, separation of the teeth, etc.
		Causes of a thermal nature.	Acids, sweets, poisonous bacterial products.
		Causes of a chemical nature.	
		Causes of a parasitic or mixed nature.	
	Secondary	Causes starting from the pericementum. Causes as a sequence of general diseases.	

The appended description of the diagnostic signs of the various types of pulp diseases does not claim to be exhaustive in any degree;

in a short paper of this kind only the most salient features can be enumerated.

Hyperemia of the pulp is a disturbance which is most frequently met with in the routine practice of dentistry. As we have stated above, not every form of increased reaction to temperature changes should at once be classed as a pathological disturbance, it may occur as a sequence of lowered resistance in general or the specific tooth may be the point of minor resistance on account of a previous insult or other possibilities. If, however, the subjective pain in the tooth under observation as induced by heat or cold is of a sharp, lancinating character, lasting for some minutes and leaving the tooth with an uneasy, dull feeling for some little time thereafter, we are reasonably sure that an acute hyperemia of the pulp is present. If the tooth should have a cavity, the condition of the layer of dentin intervening between it and the pulp is of prime significance. Should this layer be of a sound, normal structure, one may be reasonably sure that no microbal infection has as yet penetrated through it, while if the structure is decalcified, one may expect that the existing hyperemia is merely the initial stage of a forthcoming inflammation. If, on filling the cavity temporarily with a gutta percha preparation, the tooth shows no further reaction to ordinary temperature changes, acute hyperemia may safely be diagnosed. Chronic hyperemia is often found in those multirooted teeth where senile atrophy has exposed a root more or less complete, as for instance, the palatine root of the upper molors. Acute forms of hyperemia as a result of influenza or other febrile infectious diseases are quite frequently met with. Pulp stones, which are a common occurrence, may cause by their slow increase a form of hyperemia which closely borders on acute inflammation. It is claimed that pulp stones are the causative factors when a patient complains of severe paroxysmal pain in an otherwise sound tooth and when that tooth will be extremely sensitive on tapping during the cycle of pain, but this sensitiveness has to pass off immediately after the paroxysm ceases. A hyperemic pulp will respond painful to the electric current slightly below the normal irritation point.

Acute simple pulpitis, like all future variations of inflammatory changes of the pulp is, in the greatest majority of cases, due to bacterial invasion. It should be borne in mind, however, that an inflammation may be caused by purely mechanical, thermal, or chemical irritation without the invasion of bacteria, and that aseptic inflammation with aseptic pus may be the result. Ordinarily, the apex of the cone-shaped carious defect will involve a horn of the pulp, while in a rapid, penetrating caries the primary focus of attack may reach the pulp at any point of its lower surface. Acute simple pulpitis may exist in two typical forms, viz.: as a partial or as a total pulpitis.. The differentiation between those two types of inflammation, which is merely a matter of degree and not of kind, requires subtle diagnostic skill for their correct interpretation. Partial pulpitis, according to our conception, always proceeds the total involvement of the pulp. In acute simple pulpitis, the pulp is usually not exposed. If we accidentally, or by intent, remove the thin, more or less decalcified layer of intervening dentin, the densely hyperemic pulp can be seen as a mass of bright red tissue in which the rhythm of pulsation will be readily observed. In partial pulpitis, the pain is fairly localized, while in the total forms it may have assumed a diffuse character. It is of a sharp, lancinating character, and the paroxysmal attacks may last accordingly for hours and days. Severe irritation, but especially when cold is applied, is painfully recognized; in the progressive stages of the disease heat is also usually painfully noticed. The percussion sound of a tooth with a partial pulpitis is not altered since the pericementum is as yet not involved; in total pulpitis, however, it may be tender to the touch about the apex or on tapping the crown and slightly elongated from its socket as a result of the disturbance of the pericementum above the apex. Occasionally, pain may cease spontaneously, probably as a result of sudden death of the pulp from strangulation. If the pulp is pricked with a sharp point, a few drops of venous blood quickly flow from the wound. An electric response is readily obtained from a tooth containing an inflamed pulp, it will always be found to be below the normal irritation point. The more severe the inflammation, the less current is required.

The *purulent* forms of *pulpitis* are more prone to occur in filled teeth, may it be from an overlooked minute opening in the pulp chamber, or from insufficient excavation of the infected dentin in deep seated cavities. The pain is of a dull, diffuse character and is not materially altered by temperature changes. The patient may not be able to locate the painful tooth and sometimes not even the side of the jaw in which the pain is felt. Increased influx of blood, as on lying down, violent exercise, by coming from the outside cold into a heated room or other sources which increase blood pressure, augment the pain perceptibly. The degeneration of the pulp tissue is principally manifested near the primary point of infection. Localized abscesses, either single or multiple, are often observed in extracted teeth afflicted with purulent pulpitis. By entering into a purulent pulp with a drill, the removal of the latter is always immediately followed by the welling up of pus and the primarily existing severe pain is quite often at once relieved. In most cases of purulent pulpitis, by way of continuity, the apical tissues of the affected tooth are involved resulting in acute or chronic pericementitis with their sequences, viz.: abscess, fistula, etc. Depending on the progress of the purulent involvement, a more or less strong electric current is required to bring forth any response. The current required is always stronger than the one which is necessary for establishing the normal irritation point in a similar tooth of the same patient.

In *chronic ulcerative pulpitis,* the *sine qua non* is the exposure of the pulp. Room for expansion and drainage of the pulp are necessary for the full development of this stage of the disease. Ordinarily, the patient complains of little pain, since the primary factors for its causation—swelling and resultant pressure from being enclosed in an unyielding wall of dentin—are removed. When food particles or other substances are crowded into the cavity, a momentary paroxysm of diffuse pain may occur. Temperature changes, as a rule, do not cause appreciable reactions. The arteries and veins are permanently distended, accompanied by degenerative changes in the nerves. The pulp tissue proper usually undergoes necrobiotic changes with ulceration near the line of demarcation—phlegmonous destruction—or it may become atrophic. Sometimes one observes an increase in the connective tissue elements. Chronic pulpitis may perhaps always be regarded as the sequence of some primary acute attack; it is principally confined to bicuspids and molars. Depending on the progress of degeneration, a more or less strong electric current is necessary to establish a response from the pulp.

Chronic hyperplastic pulpitis, commonly referred to as pulp polypus, or hypertrophy of the pulp, is caused by the continuous irritation of the paranchymatous structure of the pulp by the rough edges of the perforated pulp chamber. From a pathological point of view, the new growth should be looked upon as a neoplasm of the granulomatous type. These little tumors, being composed of dense, connective tissue, usually spread over the entire cavity; they are principally found in the bicuspids and molars. Hyperplastic pulp tissue is practically free from nerve elements but rich in blood vessels. Consequently, they do not react painful on being irritated, but they bleed very freely. Apparently they inconvenience the patient but little. These neoplasms are more or less pedunculated, the stem being rather short. The pulp itself is almost always found in a high state of chronic inflammation and extremely sensitive to the touch. In diagnosing these new growths care should be exercised not to confuse them with hypertrophic gum tissue, which may have grown into the cavity. From the above description the diagnosis of a chronic hyperplastic pulpitis is a comparatively simple procedure.

Necrosis and *gangrene*. While we realize that in its strictest sense necrosis and gangrene have no place in the nosology of the diseases of the pulp, nevertheless, they form clinical entities which possess specific diagnostic features and their enumeration is called forth at this moment so as not to interrupt the chain of pathological evidence. At the outset we should remember that necrosis and gangrene are two distinct types of tissue death *in situ*. The former may result from any cause, while the *sine qua non* of gangrene is necrosis *plus* saprophytic bacterial infection. Unfortunately, in surgical pathology both terms are frequently badly jumbled, as for instance, in the erroneous expression: carbolic acid gangrene.

Necrosis of the pulp is frequently met with. A pulp may be dead for months without causing any disturbance. It may be discovered on examining the teeth of a patient without the latter having any knowledge of its existence. The tooth under observation is often more or less discolored, hot or cold produces little or no reaction, the translucency has usually become dulled, but the safest diagnostic aid is the electric current. A necrotic pulp does not respond to even the full current of the ordinary battery. The pathological types of pulp necrosis, viz.: coagulation, colliquation, caseation and mummification play no part in the diagnosis proper.

Gangrene of the pulp, as stated above, necessitates microbal infection of the necrotic tissue. It is immaterial whether the infection reaches the dead pulp through a cavity or *via* the circulation. Its diagnosis is based on practically the same points as necrosis with this important addition: an intense foul odor, and, if there is no opening into the pulp chamber, more or less severe swelling of the gum and the surrounding tissue, often including a part of the face, and pain. In fact, the pathological picture often presents a diffuse purulent pericementitis or periostitis. There is no response to the current except in such cases where necrobiotic changes are still going on, viz.: where a part of the pulp may still show vital reactions. These possibilities are primarily found in multirooted teeth. Gangrene always presents a semi-liquid mass of dirty, grayish or black debris with the typical putrescent odor. The autolytic dissolution of the dead pulp tissue is caused by the action of the ferments liberated from the leucocytes; the bacteria only play the role of important biological agents in this process. The so-called dry gangrene differs from moist gangrene in so far as it is *not* gangrene but mummification necrosis.

REPORT OF THE COMMITTEE ON ART AND INVENTION.*

BY GEO. C. POUNDSTONE, D. D. S., CHICAGO.

During the past year many new instruments, appliances and devices have been brought out to aid the dentist in his work and it is therefore a pleasure to be able to present so many new things to you at this time. Through the generosity of the various manufacturers many of the instruments and appliances are here for your inspection. Your committee presents a brief description of each of the noteworthy inventions that have come to his notice.

The S. S. White Dental Mfg. Co.

1. Gregg's Plastic Filling Instruments. A set of five instruments of spatula form, flat, springy and very thin, having the necessary strength and yet enabling the operator to work in interproximal spaces. Made for cone socket only.

2. New Harvardid Translucent Enamel. A silicate cement

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*Read before the Illinois State Dental Society, May, 1911.

having a natural gloss, an enamel like appearance and great edge strength. It is insoluble in the saliva. Put up in four colors.

3. Pumice Flour for Prophylaxis. A very finely ground pumice flour for cleaning around the gum margins and the interproximal surfaces of teeth.

4. Broach Holder No. 6. A small, neat instrument, the knurled handle being hollow all the way through.

5. Carborundum Cavity Trimmers. A set of five instruments mounted on mandrels for either direct or angle handpieces.

6. Easy Flowing Silver Solder Wire. A convenient form of solder for orthodontists. It is coiled, with a sliding metal band to control it.

7. Angle's Gold and Platinum Expansion Arches, "E." A special combination of gold and platinum to give the requisite spring to the appliance.

8. Angle's Impression Trays. Two new patterns (1 upper and 1 lower), with high vaults and rims to allow room for the teeth, but smaller than the usual forms. Especially adapted for making models of the mouths of children.

9. Adjuster for Tubes of "D" Bands, Angles System, Holder for Soledring of "D" Bands. An instrument to be inserted into the tube of the regular band to obtain proper alignment. The holder can be fastened to the thread of the regular bands and being provided with a ball and socket joint simplifies the act of soldering.

10. S. S. White Plate Punch No. 13. An improved punch with reach enough to punch holes in any part of a plate. It releases the plate automatically as soon as the hole is punched. Provided with common sense handles.

11. Transparent Celluloid Strips. For use as matrices and burnishers for silicate and other cement fillings. They are very thin, tough and flexible, readily bending to the contour of the tooth. Useful in contouring the wax model for an inlay.

12. Spring Pin Mandrel. Made in three styles for No. 6 and No. 7 hand pieces and for No. 2. R. A.

13. Wire Soldering Frames No. 5 and No. 6. Two substantial frames, one flat and one concave.

14. S. S. W. Plate Punch. An improved plate punch with removable pin which, when worn out can be readily replaced.

THE CONSOLIDATED DENTAL MFG. CO.

1. A Flexible Metal Inhaler Tube for gas with couplings to fit any inhaler or gas apparatus. It saves gas and is indestructible.

2. A New Gas Regulator for Vulcanizers.

3. The Consolidated Aseptic Bracket Table, circular in form. White glass surface with heavily nickeled frame. Rim is notched at intervals to keep instruments from rolling. There is a nickel plated cotton holder underneath. A very neat and serviceable piece of dental furniture.

4. A New Modeling Compound called Modelrite, for which claims of superiority are made.

5. A New Mandrel No. 322. For paper discs with spring pin and four points for engaging disc instead of three as in the Morgan-Maxfield Mandrel.

6. The Third Edition of "Crown and Bridge Work," by H. J. Goslee.

DR. WM. H. TAGGART, CHICAGO.

1. A new fluid investment compound for cast inlay work. Mixes easily, allowing the escape of practically all air bubbles. The initial setting is slow, giving plenty of time to properly invest the wax model.

2. A proportionate weighing device to accurately gauge the amount of investment powder and water. One of these comes in each 3-pound can of investment material.

3. Taggart's Green Inlay Wax. A wax that is absolutely hard and brittle at the body temperature and cannot be distorted in removing from the cavity.

4. A device for heating wax by means of an electric bulb with thermostat for keeping temperature uniform.

5. Device for mixing investment material driven by a motor or attached to the polishing lathe.

THE DENTINOL AND PYORRHOCIDE CO., New York.

1. An Improved Set of Scalers, made at such angles as to enable the operator to reach every surface of the tooth from one position.

2. The "Dentinol Perfect" Syringe for use in injecting into pockets around teeth, consists of a glass barrel, graduated, fitted with a ground glass plunger. The point is of iridio-platinum and

fastens to the glass barrel with a tapered joint. There are no packings, it does not leak and can be readily sterilized.

The Prometheus Electric Co., New York.

1. An Electric Sterilizer of oblong box form for dental instruments.

Wilmot Castle Co., Rochester, N. Y.

1. A Set of Sterilizers for Dentists, consisting of separate sterilizers for instruments, water and dressings all mounted upon a single metal stand. Outfits may be had in two, three or four pieces.

A. E. Peck Mfg. Co., Minneapolis.

1. A machine called The Surecast, for casting inlays, bridges, plates, etc. The pressure is obtained by forcing into the crucible, upon the molten gold, Mudola, a compound like Moldine. The machine is constructed so that the pressure can be regulated and is brought upon the gold automatically with small chance of error.
2. Peck's Graphite Investment Compound.

John Hood Co., Boston.

A Contour Crown Press Outfit, designed by Dr. W. G. Bridge for accurately duplicating in gold a form previously made in copper and carving compound. The swaging is done with wax, it being forced into the shell by means of a screw, cam and lever device which forces a plunger into the wax. The form into which the gold shell is pressed is a split mould in a steel ring. This outfit is small, compact and easily operated.

Dr. Byron M. Fell, Doylestown, Pa.

1. Two Dental Guards, one for No. 7 and one for Doriot handpiece. These are to prevent laceration of the cheek or tongue while grinding down a tooth for crown or bridge.

Dr. E. J. Greenfield, Wichita, Kansas.

An Artificial Root for implantation, to which a crown or bridge may be attached. The root is a framework of iridio platinum wire of a size suitable to the place in which it is to be implanted. One requirement is a good healthy process.

Dr. E. O. Pieper Dental Mfg. Co., San Jose, Cal.

A new casting flask with a diaphragm between the crucible and the mold section to prevent loss of pressure in casting. The small opening makes all air go through the investment in the vicinity of the mold instead of down the sides of flask where it is wasted.

American Water Supply Co., Boston.

1. Aseptic Paper Drinking Cups and a New White Enamel Holder and Bracket for holding same.

Detroit Dental Mfg. Co., Detroit, Mich.

1. An impression tray with removable handle which permits the patient to close the lips while impression is in the mouth, thereby enabling the dentist to get the proper fullness to the face in both impression and bite. They are much shallower than ordinary trays.

2. Ready Made, Non-changeable Approximate Models. Made of cast aluminum, 100 different shapes in the set. A small amount of plaster is poured into the impression, an approximate model is forced into it which makes a completed model of metal with a minimum amount of plaster which will neither warp nor change shape during vulcanization.

The Lennox Chemical Co., Cleveland, O.

A New Valve for Gas Cylinders. This valve has a safety device which blows off at a given number of pounds pressure, making accidents from an exploding gas cylinder next to impossible.

Young Dental Mfg. Co., St. Louis, Mo.

A Set of Rubber Polishing Cups and Discs, with a screw attached to the rubber. These are used on a plain mandrel and permit of much closer work between teeth than when the ordinary cups are used on a screw mandrel.

Ransom and Randolph Co., Toledo, O.

Dr. Price's Artificial Stone for use in the casting process. An impression of cavity and surrounding parts is taken in wax which is poured with the artificial stone which makes an exact duplicate of conditions in the mouth. From this the wax inlay is made, cast and fitted, which makes all the difficult work of securing a wax model in the mouth a very simple process.

Lukens and Whittington, Philadelphia.

1. The Dalton Bandless Crown Remover for removal of plain porcelain crowns without injury either to the crown or to the root. The principle is that of a wedge being slowly forced between the crown and the root.

2. A Set of 3 Extractors designed by Dr. Cryer, with all metal handles to facilitate sterilization.

3. A Set of 4 New Extracting Forceps designed by Dr. Cryer. Two of these are small and well adapted for broken roots and for children's teeth. The other two have wider beaks, making them better adapted for teeth with crowns still in position. All joints are beveled and smooth.

THE DAYTON DENTAL SPECIALTY CO., Dayton, O.

1. The Dayton Broach, Improved. A barbed broach with metal handle attached, made in three sizes.

2. An All Metal Abscess Probe, designed by Dr. Billows. Light, flexible and easily sterilized.

LEE S. SMITH & SON CO., Pittsburg.

1. The Vernon Rotary Air Compressor. A small device to be used in connection with the polishing lathe or motor. By means of a revolving sectional disc air is taken in at one side, compressed and forced out at the other. It will operate blow pipes, gas furnace or furnish air for use at the chair.

2. Vernon Extracting Screws. A set of three taper screws which may be turned into the canal of a root, thereby affording a hold for the forcep.

3. An Excavator Sharpener in the form of a grooved, green carborundum wheel mounted on a mandrel.

THE DENTAL PROTECTIVE SUPPLY CO., Chicago.

New Fellowship Crown, Bridge and Inlay Cement. Among the claims for which are easy mixing, extra adhesiveness, cohesiveness, compatibility with tooth structure. No shrinkage, etc.

JOHNSON AND JOHNSON, New Brunswick, N. J.

1. Aseptic Glass Jars for Cotton Rolls. Two sizes, one for 6-inch rolls and the other for 1½-inch rolls.

2. An Aseptic Glass Dish for 6-inch square dental napkins. These jars and dishes are neat and attractive as well as serviceable in keeping their contents in perfect condition.

3. Aseptic Tray Mats for Lee S. Smith & Son Cabinet.

4. Circular Covers for Cleveland and Consolidated Bracket Tables.

These mats and covers all have the red cross printed upon them and are much more serviceable and aseptic than a cloth napkin.

Columbus Dental Mfg. Co., Columbus, O.

1. Steele Posterior Bridge Tooth with backing and pin in either platinum alloy or gold. These teeth make a strong bridge with no metal visible.

2. Polishing Paste for Porcelain. This will restore the polish after grinding equal to the original glaze of the porcelain. It comes in stick form numbered 1 and 2.

The Buffalo Dental Mfg. Co., Buffalo, N. Y.

1. Lewis Adjustable Soldering Block Holder. A device for securely holding any soldering block of asbestos or carbon from 3 to 4 inches in diameter.

2. Dr. H. A. Pullen's Impression Grooving Knife to facilitate the removal of plaster impressions from the mouth. Especially valuable in orthodontia work.

3. Lewis Electric Mouth Illuminator. Produces a light of high power but of such mellowness that it is restful rather than trying to the eyes.

The Kolynos Co., New Haven, Conn.

1. An Atomizer with all tubes of glass. Easily cleaned and sterilized and all working parts visible.

2. Glass Syringe with flexible platinum point and glass piston. Adapted for use of bismuth paste and similar preparations.

James J. Ottinger, Philadelphia.

Mouth Remedies:

1. Zhongiva for irritated gums and loosening teeth.

2. Phenlin Oris, an emolient and antiseptic cream for cracked or roughened conditions of the lips or mucous membrane.

Parke Davis and Co., Chicago.

1. Dental Hypodermic Outfit, consisting of an all metal syringe with a straight hub to take a Schimmel needle, an extra curved hub to enable the operator to reach posterior parts of the mouth. There is also a long flexible silver point for use of bismuth paste. This outfit is built for hard usage and will prove extremely serviceable.

2. Adrenalin and Novocaine, 1/400 and 1/6 gr. in tablet form for hypodermic injection or for removal of pulps by pressure anesthesia.

Dr. F. Stanwood Welden, Brooklyn, N. Y.

Welden's Casting Porcelain. A porcelain to be cast like gold.

It is claimed to be of good strength and to cast without shrinkage. The translucency is as yet not what could be desired, but further experiments may improve this.

Gebauer Chemical Co., Cleveland, O.

A Flexible Spraying Nozzle of Ethyl Chloride Tube, which enables the operator to spray in otherwise inaccessible places.

Sam'l. G. Supplee & Co., New York.

A detachable gum block to be used in connection with a bridge where much absorption has taken place.

Dr. F. B. Spooner, Brooklyn.

1. A Vulcanite Cement Spatula and Container. The spatula acts as a stopper for the container, which is filled with ammonia. When through using the spatula drop it into the bottle and when wanted again it will be ready and clean.

2. A dropping bottle for liquids, operated by pressing a rubber cap which compresses the air in the bottle and forces the liquid out through a small bent glass tube.

S. Eldred Gilbert, Philadelphia.

Alvesol, a powder and liquid preparation for the treatment of putrescent and abscessed teeth.

REPORT OF THE COMMITTEE ON NECROLOGY.*

BY DR. JAMES W. CORMANY, CHAIRMAN.

Mr. President and Gentlemen of the Illinois State Dental Society:

Dr. Robert Hayes Antes was born in July, 1837, and died in January, 1911, leaving surviving him his wife, two brothers and a sister. He was a graduate of the Pennsylvania College of Dental Surgery in 1863, and was engaged in the successful practice of denistry in Geneseo from the time of his graduation until his death. He was a life member of the Illinois State Dental Society, and was held in high respect by his associates. He was a Christian in the true sense of the term, and was ever tolerant of the opinions of others. In addition to his skill as a dentist he also possessed much skill as an artist and as an inventor.

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*Read before the Illinois State Dental Society, May, 1911.

The curtain has been drawn, life and action are forever stilled, and there remains to us only the comforting memory of pleasant relationship with a useful and noble man.

Dr. George E. Warren was born at Joliet, Illinois, October 18, 1869, and died at Pontiac, Illinois, in 1910. At an early age he removed with his parents to Washington, Iowa, where he received his early education, graduating from the high school of that city in 1888. In 1889 he began the study of dentistry in the office of Dr. E. H. Stewart, at Joliet. During the winter of 1890-91 he attended lectures at the Iowa State University, and in 1892 he received the degree of Doctor of Dental Surgery from Northwestern University at Evanston, Illinois. He began the practice of his profession as an assistant to Dr. H. H. Towsend, at Pontiac, immediately after his graduation, and he continued to practice there until ill health compelled him to retire from active life. He became a member of the Illinois State Dental Society in 1895, and continued active in his membership, serving on several committees. In the years 1905, 1906 and 1907 he was a member of the executive council of the society. Upon the reorganization of the State Society he affiliated with the McLean County Dental Society.

Dr. Warren was a pleasant gentlemen to meet, and was always warm and genial in his intercourse with his friends. He died mourned by many, both professional colleagues and former patrons.

Dr. Edgar C. Stone of Galesburg, Illinois, was born at High Gate, Vermont, January 28, 1836, and died February 9, 1911, of heart failure, at the ripe age of seventy-five years. As a boy he lived at Fairfield, Vermont, and received his education at that place. When slightly over twenty years of age he came to Illinois, going to Peoria. There he studied in the office of Dr. Greenleaf, a well known dentist of that city. Eight years later he removed his residence to Kewanee, where he practised for seven years. In 1861 he was married to Miss Eliza Foster, the ceremony taking place in that city. Mrs. Stone passed away in 1895. Shortly after his marriage he removed to Galesburg. He was married the second time, the wife of this marriage being Mrs. Harriet Gilray. She passed away in May, 1905. Dr. Stone left two daughters, Miss Cora F.

of Galesburg, and Miss Adelaide Lyman of Butler, New Jersey, and a brother, L. T. Stone, of Galesburg.

Well do we remember Dr. Stone. There was no cant or hypocrycy in his life. He abhorred evil and evil ways. He lived a clean and wholesome life, and was in all respects truthful and reliable. He was a true professional brother in every sense of the word.

Dr. Edward Lester Guffin, of Geneseo, Illinois, was born at Morrison, Illinois, in May, 1852, and died in 1911. He was a life member of the Illinois State Dental Society, and for sixteen years practised dentistry at Oak Park, Illinois. In addition to being a Doctor of Dental Surgery he was a Doctor of Medicine, and success attended his practice in both capacities. In 1884 he filled the chair of oral surgery in Bennett Medical College. More than a score of years before his death he was deprived of his sight, therefore for him the world was in a sense a realm of darkness and endless night; yet his innate cheerfulness and optimism did much to illumine his years of night and to bless those about him. He left surviving him his wife and two daughters.

"The biography of no good man can be written without including so much as can be known of the heart history of the wife. Not all can be known. There are whole chapters known only to herself and her God, but they are not unrecorded chapters, and when all is made right that so puzzles us here we may see that these trials, which are but for a moment, shall work out a far more exceeding and eternal weight of glory.

Dr. G. W. Gray of Rutland became a member of the State Society in 1905 through the La Salle County Society. He was born in Zanesville, Ohio, in 1845, and died May 27, 1910, of Bright's disease, ending in apoplexy. He began practice in 1869 at Wenona, and went to Rutland in 1878, where he practiced 31 years. "He was an unassuming citizen, honored by all who knew him." He left a widow, four children and three grandchildren. His membership with us was too recent to permit very much activity in society affairs or very wide acquaintance with our members.

Dr. Charles B. Rohland of Alton, Illinois, was born at Lebanon, Pennsylvania, March 24, 1845, and died June 29, 1910. He was educated in the Lebanon public schools and afterwards attended Union Seminary at New Berlin, Pennsylvania, in which he subsequently taught. Later he studied at Dickinson College, Carlisle, Pennsylvania, and was there given the degrees of B. A. and M. A., and was graduated with the second honors of his class. Turning to dentistry, he matriculated at the Pennsylvania College of Dental Surgery, and received his degree of Doctor of Dental Surgery in 1869 from that institution.

The DENTAL REVIEW says of Dr. Rohland: "He was the founder and first president of the Southern Illinois Dental Society, a life member of the Illinois State Dental Society and had held all the offices within its gift. He was also a member of the National Dental Association, Delta Sigma Delta fraternity, and had been at one time a member of the Illinois State Board of Dental Examiners.

"The death of Dr. Rohland has removed from dentistry one of its shining lights. This is not merely a stereotyped phrase, but it is a literal truth. He was the very highest type of a professional gentleman, cultured, clean, capable, and above all, most lovable. His wit was of the rarest, keenest, and withal the most kindly that ever fell from human lips. Whenever Dr. Rohland rose to speak in a dental gathering he at once commanded the attention of the entire assembly. This was not because he was ever in the least obtrusive —he was by nature the very opposite—but because his well-balanced brain, backed by years of study and observation, never failed to grasp the essentials of any subject which claimed his attention, and his vocabulary was so clear and incisive, his personality so attractive, that it was always a pleasure to hear him.

"He will be greatly missed from the councils of the societies of which he was a member, particularly the Illinois State Dental Society, the membership of which held him in the highest esteem. To know such a man was an inspiration, to be his friend was a great and cherished privilege. His influence among his fellows was always for the good, and he has left the world, because of his sojourn here, a better place in which to live."

The *Dental Cosmos*, among other things, says of Dr. Rohland: "He was one of the foremost men of the profession in Illinois. He had long suffered from kidney disease, and early in the present year felt that he must take life easier, and decided to get an assistant in his office who should bear the burden of the work. Since effecting that arrangement he had himself been very little at the office. * * *

"Dr. Rohland went to Alton in 1869 and opened an office for the practice of his profession. From that time he was identified with the principal dentists of the State of Illinois, and in Alton was looked up to by all his colleagues. He believed in organization among dentists, and was active in his efforts to form and maintain societies. He was the founder and first president of the Southern Illinois Dental Society, and had filled the offices of president, vice-president, secretary and treasurer of the Illinois State Dental Society. He was a life member and a member of the executive board of that society; was a member of the Dental Protective Association, and was often a representative from Illinois to the American Dental Association and also to various international meetings of the profession. During the term of Governor Fifer he was a member of the state examining board, being selected by the Illinois State Dental Society.

"Dr. Rohland was a man of cultured mind and considerable literary attainment. He was a skillful musician, and could play the 'cello and organ. He was always faithful to his profession and worked hard in the interest of his patients. He had attended to the dental needs of many of the Alton people from childhood to middle life. He found time, however, to write many papers for dental societies, and also contributed chapters to dental text-books. His opinion on professional subjects was valued by men eminent in the profession.

"As a man he was courteous, refined and elegant, was devoid of ostentation, made warm personal friends, had not an enemy on earth, and might be termed one of the highest exponents of professional ethics.

"He is survived by his wife, Mrs. Cora D. Rohland, and his daughter, Miss Constance. He has no other immediate relatives. He was a member of St. Paul's Episcopal Church, also of Belvidere Commandery, Knights Templar.

"His funeral was held Friday, July 1st, at 3 o'clock, from St. Paul's Episcopal Church, Alton."

The following are the resolutions passed immediately following the burial of Dr. Rohland, at an informal meeting of the Madison County District Society, held at the Illini Hotel, in Alton:

"The very intimate relations existing between Dr. Charles B. Rohland and this society, he being its first president and chief organizer, makes it most fitting that we record our appreciation of his wise counsel, his unusual abilities as a dentist, his great personal interest in this and other dental societies of which he was a member, his unselfishness, his pleasant smile and glad hand, and his possession of those mental and moral traits which make up a strong and lovable character; these attributes being such prominent features in his life that his 'going out' leaves a vacancy that cannot be filled.

"The beautiful flowers, wreathed by loving hands, that covered his grave on that July afternoon will soon wither and fade. Not so the tender memories wrought by our acquaintance and association with him,—for the longer we knew the more we admired and loved this man, who in professional and social life endeared and fastened himself to our hearts as with hooks of steel.

"We extend our deepest sympathy to his widow and to his daughter, and commend them to 'Him who doeth all things well.'"

The passing from earth of our beloved friend and co-worker, Dr. Rohland, caused us unalloyed grief and pain. We felt indeed that we had lost more than a comrade and friend,—we could not but feel that we had lost a brother, so close were the ties that bound him to us. He was, in truth, one to win and hold the love and respect of his fellows, and all who grasped his gentle hand and looked into his soulful eyes were at once his devoted friends. His nature was sweet and perfectly adjusted; his mind possessed poise; his heart was great and sympathetic; his vision was clear and his life one of service. His name and memory will long be treasured by us. His dignity, courtesy, and true quality of heart and mind are worthy of all emulation and honor. To know him was to love him.

"Away! we know that tears are vain,
  That death nor hears nor heeds distress;
Will this unteach us to complain?
  Or make one mourner weep the less?
And thou, who tell'st me to forget,
  Thy looks are wan, thine eyes are wet."

All of our departed brothers were long and favorably known by the membership of the Illinois State Dental Society, in the meetings of which they took an active interest and displayed much ability concerning all matters of a professional nature. Let us, their associates and co-oworkers, treasure their memories, and, inspired by their fidelity, courage, and unselfish service, press forward with renewed energy and determination to new victories in our profession. Let us hope that their reward will be great in that world to which they are gone, the world of perfect life and joy.

Respectfully submitted,
James W. Cormany.
L. B. Torrence,
W. R. Neff, *Committee.*

THE REPORT OF THE LEGISLATIVE COMMITTEE OF THE ILLINOIS STATE DENTAL SOCIETY, PEORIA, MAY 9, 1911.

BY DR. C. R. E. KOCH, CHAIRMAN.

Your Committee on Legislation desires to submit the following report of their acts and doings since the last meeting of this Society:

In the effort to carry out the strongly expressed desire of the members of the dental profession that the state institutions should be provided with proper dental care of their inmates, our committee visited Springfield early in the session of the General Assembly for the purpose of investigating and urging this subject. We found Governor Deneen very favorable to the proposition, and upon visiting the Board of Administration and Civil Service Commission we learned that there was no specific legislation necessary to accomplish the end in view. The Board of Administration assured us that they were willing to do anything within reason and within the appropriations available to them to have such appointments made, especially in the institutions under their care, whose inmates are largely children. The Civil Service Commission also assured us that they would gladly co-operate with the Board of Administration to find suitable men to fill these positions. We asked for the appointment of at least six dental internes, and while at the present time this number has not been appointed, we feel certain that as fast as arrangements can be made and the proper men found, the interests of the inmates of the state charitable institutions will be looked after in this direction. We are indebted not only to these high official bodies, but also to Colonel Adams of the St. Charles Boys' Home and to Mrs. Amigh of the Geneva Home for Girls for the privilege of making investigations and examinations of the children's mouths in these institutions. The detailed work of this was carried on by some of the officers and members of this Society, resident in Chicago, whose report is filed herewith as an exhibit.

A resident dentist for these two institutions has been appointed, and he devotes all of his time to them. The Kankakee institution has been served very acceptably in this direction for several years, and we understand that the Lincoln institution, and others, will be taken care of as soon as it is practicable.

In this connection we wish to state that we asked for a similar permission to examine the children's teeth in the Pontiac Reformatory. This institution is not under the care of the State Board of Administration, and here the condition is somewhat different. There has been a dental attendant there for some time, who, however, confines his attention especially to such inmates as are able to pay fees. We are not able to say what service is given to such of the boys as have no friends prepared to furnish the means necessary to secure for them such dental service as they may require, beyond perhaps extracting that may be done, and we regret to say that the superintendent did not see his way clear to permit the committee of dentists to make a scientific exploration and investigation of the mouths of the boys confined in that institution. We fear that we failed to make our object sufficiently clear to the powers that control this institution, and the fact that we were entirely disinterested. The superintendent expressed himself entirely willing that the dentist who had charge of the teeth in that institution, might make these investigations himself.

We recommend that the present method of giving this service to both the penal and charitable institutions should be closely observed until the next session of the Legislature, and then, if necessary, such remedial legislative enactments as might be deemed best may be asked for from the General Assembly.

EXHIBIT.

The initial step in this movement was taken on February 15, 1911, when fourteen dentists from Chicago, together with their assistants (one assistant for each dentist), sacrificed a day's time to this commendable cause, and Dr. Chas. R. E. Koch, chairman of the Legislative Committee of the Illinois State Dental Society, visited the State Training School for Girls at Geneva, and the School for Boys at St. Charles, where by the aid and kind assistance of Colonel Adams and Mrs. Amigh, together with their efficient and courteous corps of assistants, they were enabled to carefully examine the greater portion of the children in these two great institutions.

The following brief statements will convey an idea of the conditions as they exist at the present time from a dental viewpoint:

Totals from tabulations of examinations of the mouths of 752 of the children at the Illinois State Training School for Boys and for Girls at St. Charles and Geneva:

	Boys' School St. Charles.	Girls' School Geneva.	Total.
Total number in schools, estimated	500	500	1,000
Number of mouths examined	318	434	752
Cleanliness of mouth marked good	48	132	180
Cleanliness of mouth marked fair	147	230	377
Cleanliness of mouth marked poor	123	72	195
*Condition of gums marked good	72	128	200
*Condition of gums marked fair	153	215	368
*Condition of gums marked bad	93	91	184
Total number of cavities that should be filled	2,112	2,120	4,232
Average number of cavities per child	6.6	4.8	5.6
Number of teeth in which cavities were so deep that the pulps were probably exposed	128	89	217
Number of teeth having abscesses	38	22	60
Number of teeth of the permanent set so badly decayed that they should be extracted	105	100	205
Number of teeth of the temporary set that should be extracted	120	18	138
If 500 children had been examined in each school, and the same percentage of cavities had been found, the total number would be	3,320	2,442	5,762

The examiners were impressed with the following facts as a result of their visit to these institutions:

1. Interest of Colonel Adams and Mrs. Amigh in the condition of mouths and very evident appreciation by both of the importance of health of mouth in relation to moral, intellectual and physical development of child.

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*The condition of the gums indicates the need of removal of deposits from the teeth and proper cleaning by the dentists.

2. A like interest and appreciation on the part of many assistants to both superintendents.

3. Excellent condition of the mouths of the children, considering that they have had practically no dental service whatever.

4. The fact that over 95 per cent of all cavities found are small enough at the present time that the teeth may be saved by fillings.

5. The urgent need of adequate dental service for these children at the time when this service will have the most beneficial effect, not only in saving their teeth, but in aiding in their proper development.

6. Of all of the state institutions, it is probably more important to give dental service to these two at the earliest possible time.

7. The time of two dentists, one for each institution, could be fully occupied in keeping the mouths of the children in good condition, although one dentist would be able to care for the most urgent cases in both schools.

Copies of the above report were forwarded by Dr. Koch to his excellency Governor Deneen, to the members of the State Board of Administration, and to the State Civil Service Commission.

Under date of February 20, the governor informed Dr. Koch that he very much appreciated these efforts and assured him that he would lend every assistance in his power to further the interests of the cause; also, that he would submit his ideas to the State Board of Administration.

We are pleased to report the following communication, which is certainly most gratifying:

State of Illinois Board of Administration.
Springfield, February 22, 1911.

Dr. Charles R. E. Koch.
Chicago, Illinois.

Dear Doctor: Your letter of the 16th inst., with a report concerning the condition of the mouths of the inmates of two schools at St. Charles and at Geneva, under this Board, has been received. The matter was presented at a meeting of the Board of Administration held yesterday, and it was voted to establish the position of resident dentist for these two institutions, offering a salary of one hundred dollars ($100.00) per month and maintenance, or one hundred twelve dollars ($112.00) per month, the dentist to live outside the institution. His entire time is to be given to this work—three days a week to St. Charles and three days to Geneva. The Board will provide the equipment and supplies. The Civil Service Commission has been asked to furnish an eligible to fill this place.

Very respectfully yours,
THE BOARD OF ADMINISTRATION.
By J. L. Greene.

We have held several sessions in consultation with the Illinois State Board of Dental Examiners, who believe that an annual instead of a biennial registration, as now existing, is entirely desirable, and in fact essential to furnish the revenue now needed, not only to carry out the examinations of applicants for licenses, but also for the purpose of prosecuting offenders against the dental law. We were persuaded to introduce a bill changing Section 11 of the present dental law, so as to make registration annual, on the first day of January and Dr. Harp of Morrisonville, a member of the Lower House, was good enough to act as sponsor for the Bill introduced for that purpose.

At this time the question of turning the fees, fines and income of all the state boards and commissions into the state treasury, and providing for the payment of all bills of such boards and commissions by the state treasury, became seriously agitated, and in fact the House passed such a bill. In looking the ground over we fear that it would be unwise to make any change in the income of this Board, until this new method of administration shall have been tried a year or two and it then would be determined how much money would be actually appropriated for the uses of the Board by the state legislature, from the amount of income derived by the Board and placed in the state treasury. This doubt resting upon our minds, we felt it unwise to tax the dentists of Illinois to an additional amount of $3,500.00 or $4,000.00 per annum without having the certainty that such additional amount would be made available for the use of the Board for the prosecution of offenders.

An additional reason for our feeling thus lies in the fact that there seems to be a decided opposition in high legal circles against the employment of special counsel by state boards and commissions, and the money so raised from additional fees of the dentists of the state might not be made available for the engaging and paying of counsel and investigators. It did not seem wise to us that the amount of money so raised should lapse into the general fund of the state, especially as from the beginnings of dental enactments of this state until the present date, the people in legislature assembled have always made it clear that they would not willingly contribute anything from the general fund to the support of the dental law. The dental profession of the state has always sustained the enforcement of the law by supplying the necessary revenues to do so, and, under the circumstances, we felt it our duty to request the Honorable Dr. Harp not to press the amendment to the dental law.

It is our opinion that an annual registration fixed at a certain date, when once established, will be easier in execution than the present biennial system and will bring largely increased resources to the Board. All dentists registered in Illinois living in other states, who wish to preserve the right to practice here are now contributing to the fund for the enforcement of the law, which prior to the registration enactment they were not required to do; in other words, they have the privilege of enjoying the right to come back at any time, and they are assisting the State Board in sustaining the law of the state during their absence from it.

All of which is respectfully submitted.

T. W. Brophy,
Donald M. Gallie,
C. R. E. Koch, Chairman.
Committee.

REPORT OF THE PUBLIC DENTAL EDUCATION COMMITTEE.*

BY DR. C. E. BENTLEY, CHICAGO, CHAIRMAN.

The Public Dental Education Committee, like all similar Committees throughout the country, has been feeling and groping its way, during the last year. I should say we were in the nebulous state. Lacking in precedents and with an increasing demand on the part of the public that something be done, we have been trying to get things in focus. The amount of work to be done is staggering. The means with which to do it are at best wholly inadequate. With a year's work we are only beginning to get a true sense of the propositions before us.

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*Read before the Illinois State Dental Society, May, 1911.

In spite of the inadequacy of means and lack of precedents to guide us, we have accomplished some good work. We have done two things: We have gotten out a booklet entitled "Care of the Mouth" and had lectures delivered to lay audiences. Result: An acute interest in our propaganda on the part of the public wherever these two have gone.

First. 12,000 booklets entitled "The Care of the Mouth" have been sold to the members of the Society and they in turn have given them to their friends and patients where the most good could be done. The influence of these booklets has been far reaching. Innumerable inquiries have come to the Secretary of the Society and Chairman of the Committee regarding them from all parts of the country and in one instance from France. In two instances they have been adopted by teachers of physiology as text books in the school room.

The Child's Welfare Exhibit, which is to be held in the Coliseum in Chicago, May 11th to 26th inclusive, has ordered 10,000 for free distribution to the persons viewing the Mouth Hygiene Exhibit, which will be a part of that big, educational display.

Second. In the matter of lectures: It has taken the greater part of the year to organize a corps of lecturers for this work. We had first to agree upon what subject should be elaborated and select such slides as would be appropriate. Several kinds of lectures were needed for the work. For instance: The kind of lecture suited for a teacher's convention would be wholly unsuited for school children and both might be inappropriate for a mixed audience.

Again, the calls from the state have invariably come for several men who are known for their facility of speech, who were included in the corps of lecturers, as published in the Bulletin.

In many instances these requests could not be met because these men could not leave their offices and practice at any and all times. But, in each instance another has been sent.

Lectures have been given in the following places:

Jacksonville, Ill., East St. Louis, Ill., Dr. F. B. Noyes; Marion, Ill., Galesburg, Ill., Freeport, Ill., La Crosse, Wis., Milwaukee, Wis., Kalamazoo, Mich., Dr. B. J. Cigrand; Aurora, Ill., Kankakee, Ill., The Chairman of Committee.

Peoria is to have a lecture by Dr. A. D. Black, and the Chautauqua of Kankakee County by Dr. C. N. Johnson.

From estimates given the chairman by the lecturers and local men, probably 11,000 have been reached.

The Committee is indebted to the above named gentlemen and the General Committee for the unselfish sacrifices made in responding to the call for these lectures and the hearty co-operation given. No work, within the lifetime of any dentist present has been more important and no responsibility to the profession, as a whole, has been greater.

The opportunity for our profession in this hygienic wave that is sweeping the country is tremendous. The responsibility is correspondingly great. If this wave should recede and the public should find that we have been unable to translate our talk into deeds, the finger of derision will be pointed in our direction.

The capital fact of the situation is that up to this time we have not demonstrated consecutive ability to grapple with the situation. The cause lies near at hand.

First. There are too few men who are willing to give of their time and means to solve this problem. More men must be engaged in this work and small jealousies and petty contentions must be stifled for the good of the cause.

Second. We must give our money for this cause, for in giving we are laying foundations for a fuller return and are contributing our mite to the great cause of humanity's betterment and until we make a definite contribution for this purpose, our profession will not receive that respect and regard that are justly ours. For all groups are judged not by what they do or can do for themselves, but rather by what they do and will do for the commonwealth.

We recommend that the booklets be purchased in larger quantities during the coming years and that they be spread broadcast, the cost can possibly be reduced to 2 cents per copy. It may be necessary to make a charge of $10.00 and expenses to be paid by any local society asking for a lecturer next year. This money will go toward the procurement of slides, etc., necessary to carry on the work.

We have the assurance of the authorities of the Child Welfare Exhibit, that after the exhibition the Committee may, at a nominal cost, buy the dental exhibit. If this can be done the exhibit can be sent to towns before the lecturer arrives and placed in a prominent part of the town. People seeing these exhibits with the announcement of the coming lecture will have their interest quickened and the crowd can be assured.

Remember, the ultimate aim of all this work is the establishment of dental inspection in the public schools by dentists. Whereever that has been done two things have resulted, namely: a decided benefit in the health of the community, and an increase in the demands for the dentist.

Whatever else may be done, let us not forget that opportunity is knocking at our door and with it responsibility.

I know the dental consciousness will be aroused and we will solve this problem through co-operation, as we have solved others.

C. E. Bently, *Chairman*.
F. B. Noyes,
G. W. Cook,
W. F. Whalen,
C. E. Byington,
C. N. Johnson.
Geo. C. Poundstone,
C. B. Warner,
J. P. Buckley,
G. W. Dittmar.

REPORT OF THE PUBLIC PRESS COMMITTEE, ILLINOIS STATE DENTAL SOCIETY, MAY, 1911.

BY DR. C. B. WARNER, CHAIRMAN.

There is very little in this report that you do not already know, since it has been the policy of this committee to take the members of this society into its confidence, and we have announced from time to time in the official bulletin the progress we have been making. Since this plan originated with us, we have been forced to blaze our own trail. No one has gone this way before in such a large and comprehensive way, consequently we expected the difficulties which are usual in pioneer work. We are pleased to state that, so far, our efforts have been entirely successful and in some respects have exceeded our expectations. We have followed the course as outlined at our last meeting, and there have been no obstacles whatever. Our committee could not have done this work but for the generous aid of the officers and the members of this society, and we wish at this time to express our thanks for your assistance.

There will be very few newspapers in this state which will not contain this series of articles. In addition to the many orders we have on file, we have received numerous letters from our members who expect to see us here, and doubtless there are others who will give us an order at this meeting. For this purpose we have established headquarters where at suitable times the members of this committee will be pleased to meet any one who desires further information or who may have any suggestions to offer.

We are pleased to state that the funds received are ample to cover all expenses, and that at the conclusion of the series there will be a small balance to be turned into the treasury of this society.

In addition to the great benefit which the public will derive from this campaign of education, we note several minor points of interest to us that were not apparent last year. For instance: in the promotion of this plan it becomes necessary that all the dentists in a community work together in order to secure the best results, and in several instances this has brought about a friendly feeling that did not hitherto exist. It also has been the means of starting some local dentists into society work. Unfortunately, there are a few dentists that regard this society as an organization for theoretical work only, and as long as they had this idea, it was difficult to interest them. This plan has appealed very largely to that class with the result that they have displayed an increased interest in society work. In this campaign, our relations with the press have assisted in discovering some of the causes of indifference which exist between the newspapers and the members of our profession. This series will tend to bring about a closer harmony and we predict that a close alliance will in time be established between these two great factors of civilization.

While we were of the opinion that this movement might be desired outside this state, we hardly expected such universal demand for service. We have had requests by dentists from every state in the union, who have heard, or read of our work. Often, they are so anxious for the service that they send their money before we can send them any explanation. When these requests began to come in, we held a meeting of the committee and decided to accommodate those outside the state on the same basis as our own members. We decided this as it would involve no additional expense to us, and because it has always been the policy of this society to be generous to others. We believe this attitude is well taken, for we have many letters on file, coming from all parts of the country, praising this society for its action in allowing those outside to participate.

We have been careful not to let any outside work interefere with the work to be done in this state. In states, where there is a general demand for systematic work, we have appointed representatives to have charge of the work, under our supervision. We have representatives in Indiana, Kentucky, Missouri, Iowa and Nebraska. In other states negotiations are in progress for more appointments. Thus far the State Dental Society in those states where we have representatives has given our appointee an official position so that there is complete harmony and added prestige for the Illinois plan.

Let us now all work together and establish a record for this state. We will start this series July 3d, and we will begin to celebrate the next day.

C. B. Warner, *Chairman,*
E. K. Blair,
C. N. Johnson.

THE RATIONAL TREATMENT OF CHRONIC DENTOALVEOLAR ABSCESS, WITH ROOT AND BONE COMPLICATIONS.*

BY J. P. BUCKLEY, PH. G., D. D. S., CHICAGO.

In directing your attention to the rational treatment of chronic dentoalveolar abscess, with complications, I want to emphasize throughout the paper the importance of a *correct diagnosis.* There is perhaps no field in dentistry which needs to be investigated more thoroughly at the present time than that of oral pathology. This fact was forcibly brought to our minds at our last meeting in the maze which resulted from the discussion of the disease so-called pyorrhea alveolaris. Today there is a great demand on the part of the profession for advanced therapeutics; and one of the essential factors upon which all successful therapeutics is based is diagnosis. To be able to make a correct diagnosis one must be well versed in general pathology and possess a working knowledge of special or oral pathology.

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*Read before the Chicago Dental Society, March, 1911.

We have men who are laboring diligently in this special field; and as a result much light is being thrown upon the knotty problems associated therewith. Still the average dentist is greatly in need of further light along pathologic lines. Take, for instance, the phase of pathology known as *infection,* in which we are especially interested tonight; and how few, when an abscess develops, search for the real cause! Far too many dentists treat the case blindly, applying drugs without knowing their specific actions, and with little knowledge of the real pathologic condition they are endeavoring to correct.

To understand the mode or modes of infection it is necessary that we be more or less familiar with the science of bacteriology. It is generally supposed by those not familiar with pathology that when infection occurs in a certain part of the body, bacteria have entered through an abrasion or wound. This is not necessarily so. I dare say that many practitioners who use pressure anesthesia to any extent can recall cases in their practice where infection followed the removal of the pulp or the filling of the canals, although every precaution was taken to prevent this result in performing the operation. When an infection of this kind occurs, the general opinion prevailing among dentists is that bacteria were introduced through the canals of the teeth thus treated. While this is far too often the case, due to carelessness on the part of the dentist, yet pathology teaches that it is not necessarily true. For example, in the case of infection of the pericemental membrane following pressure anesthesia, the cocain hydrochlorid, a protoplasmic poison, may have lowered the vital resistance of the cells, and the bacteria migrating in the tissues, through the medium of the blood or lymph, take an undue advantage of the crippled cells and infection follows.

Accepting the theory of pathologists that infection is due to the presence of bacteria, we find that an abscess may be caused in two ways: Either by introducing the germs through a wound or the canals of teeth, or by those already present in the tissues. The question as to whether bacteria are normally present in the tissues of the body has been a debatable one; however, their presence are no longer doubted. Bearing on this point Dr. J. G. Adami, of McGill University, Montreal, says: "A long series of experiments upon the mode of prevention of intestinal adhesions has afforded an interesting example of the free migration of bacteria in the tissues of the body. Setting up the mildest grades of aseptic irritation of the peritoneal cavity, it has been found, that, notwithstanding all precautions, the majority (66 per cent) of the recent fibrinous adhesions gave cultures or gave microscopic indication of the presence of bacteria. What does all this indicate? This, I think, that we must not presume that every infection is necessarily preceded by some relatively gross surface lesion; what is termed *cryptogenic infection* may well be much more common than is usually held to be the case. So also—though this must seem to be a dangerous doctrine to enunciate—that not all infective surgical complications are due to the entrance of germs through the wound. The lesson to be learned here is assuredly not that of carelessness in the treatment of surgical wounds, but increased care in the preliminary "toilet," so-called, of the surgical patient. If, as these observations seem to indicate, such bacterial subinfection occurs most commonly through the walls of the alimentary canal, then the nearest approach to actual sterility of the tissues is to be gained by placing the bowels in the most healthful state, nay, by a complete flushing out of the bowels prior to the operation. Empirically the surgeon has already learned the wisdom of this course."

Not only do surgeons generally recognize the importance of placing the bowels in a healthful state, but many leading surgeons insist upon a healthful condition of the oral cavity before performing an abdominal operation. Syphilographers have also learned, from sad experience, that salivation is not a true index to the amount of mercury to be given in the treatment of secondary syphilis, unless the mouth is in a healthful state. The findings of Cook, Moorehead, and others that such germs as the tubercle bacilli may enter the body through the canals of teeth, pyorrheal pockets, etc. are interesting in this connection, as is also the fact, now recognized by medical men, that the tonsils play an important role in the admission of bacteria in the body. The mouth is a hot-bed for micro-organisms, and while it is impossible to keep it in what is technically known as a sterile condition, yet all hopelessly decayed roots can be extracted, mechanical irritants, such as tartar, projecting fillings, ill-fitting crowns and bridges, etc., can be corrected or removed, and the patient advised to use an antiseptic mouth-wash and thus prevent the rapid proliferation of mouth bacteria. In this manner we can lessen the number of bacteria in the tissues of the body, if not completely eliminate their presence.

I have briefly called your attention to the various avenues through which bacteria gain entrance into the circulation and thus, through the medium of the blood or lymph, into the tissues of the body; and, also, to the modes of infection, as understood by our best pathologists, as a preface to that which is to here follow.

The treatment of a simple dentoalveolar abscess is not a difficult problem, and will therefore not be discussed at any length tonight; but where the abscess has been standing until the root-end or surrounding bone, or both, is affected, the difficulties of establishing a cure are enhanced in proportion to the amount of tissues involved. It is to the treatment of such abscess conditions as do not yield to the usual therapeutics that I desire to specifically direct your attention in this paper. Before doing so, however, it is well to first discuss briefly the treatment of some of the primary diseases of the dental pulp which, if neglected or not properly treated, result in the complicated conditions under consideration.

We are living in an age of prevention. Conservation is the watchword of the hour. The best way to treat a complicated dentoalveolar abscess and save the affected tooth is to *prevent its formation.* Unfortunately, we are not always in a position to bring about this happy result; but I have seen many complicated abscess conditions which could have been prevented, had the dentist been more painstaking in the treatment of the primary pulp disease and in filling the root canals. I feel that I am well within the bounds of truth when I state that, notwithstanding the two modes of infection, a large percentage of the abscesses we are called upon to treat have resulted from either an incorrect diagnosis or the indifferent treatment of the primary pulp disease and the careless filling of the root-canals.

The procedure of many well-meaning practitioners when an aching tooth presents is simply to find out whether the pulp is dead or alive. If alive, cocain hydrochlorid or arsenic trioxid is generally applied, or else the tooth is treated by simply placing cotton dipped in oil of cloves or some other soothing remedy in the cavity and the patient is dismissed without making any effort to ascertain the real pathologic condition of the pulp—whether it is in the stage of active hyperemia or passive hyperemia or true inflammation. If, on the other hand, the pulp is found to be dead, the tooth is too frequently treated by opening up the pulp chamber and placing therein a pledget of cotton dipped into the most convenient remedy at hand, leaving the cavity unsealed for fear of stirring up a "veritable hornet's nest," and making no further effort to ascertain whether the pulp has been infected by pyogenic micro-organisms producing pus on the exposed surface or, as sometimes occurs, within the substance of the tissue, or whether the germs inaugurating the changes are of the saprophytic variety, causing pulp decomposition with gaseous end-products. It is highly essential, therefore, when a patient presents with an aching tooth, that we take the time and trouble to determine not only whether we have a vital or a dead pulp with which to contend, but, if the pulp is alive, whether the condition is one of active hyperemia only or passive hyperemia or inflammation; or, if the pulp is dead, whether the condition is a so-called septic pulp with pus formation or one of true putresence with gaseous end-products. To confirm our diagnosis the tooth should be isolated with the rubber dam or bibulous paper, and a careful examination made. On no other basis can rational therapeutics be practiced.

In the time allotted to me tonight, I cannot discuss the diseases of the pulp while still vital. Those who are interested in this phase of the subject will find the treatment of these diseases outlined by me in the February (1911) Cosmos in a paper which I read in July before the National Dental Association at Denver. I must call your attention, however briefly, to the rational treatment of dead pulps; for it is from such conditions that dentoalveolar abscesses develop.

As has been previously mentioned, when on opening into the pulp chamber, under aseptic conditions, we find the pulp to be dead, we should ascertain if the tissue has been transformed into pus with practically no odor, or whether we have gaseous end-products with the characteristic odor of a putrescent pulp. In the majority of cases the latter condition will be found to exist. However, it is very important to differentiate between the two conditions, for the therapeutics differs. We may find pus in the bulbous portion of the pulp which occupies the pulp chamber with the tissue in the canals still vital. The treatment to follow in these cases is to wash out the pus or dispose of it by mechanical means, after which the pulp chamber can be dried, and a remedy having the properties of phenol compound, which contains menthol, thymol and phenol, should be hermetically sealed in the tooth. The anodyne property will control the pain while the thymol will penetrate and disinfect the tissue. At a subsequent sitting the vital tissue in the canals may be disposed of as the operator deems best.

When the pulp is dead and has been infected by such microorganisms as are generally present, it will more often be found, as previously stated, to be fully decomposed and a putrescent condition will exist in the canal. By this I mean that the canal will contain intermediate and end-products of pulp decomposition, but no pus. The chemic and pathologic nature of such products I have detailed in other articles and need not again speak of here. We are interested here to know what remedy is indicated when this condition is found to exist. Formocresol (cresol and formalin) is a specific for this condition. After we are certain of our diagnosis, the pulp chamber should be opened into aseptically and in such a manner as to expose the mouth of all the canals, when the remedy should be hermetically sealed in the pulp chamber. The formaldehyd gas which is constantly generated from this solution will neutralize the gaseous end-products and also cripple the bacteria. The cresol corrects the irritating action of the formaldehyd, and adds to the disinfectant property of the remedy. This first dressing can safely be changed the following day, but no harm will follow if it remains a week or more. Generally I leave it two or three days; it is then removed, the canals are mechanically cleansed, and a dressing of the same remedy is again sealed in each canal. At the next sitting the canals should be in such condition as to allow of their being filled.

In connection with the use of formocresol, I want to take advantage of this opportunity to emphasize one point which I am confident is over-looked by many dentists who are daily using this remedy and who are getting fairly good results, but not the best of which the remedy is capable of producing. Formocresol is indicated wherever putrescence is present in a canal or where the formaldehyd gas can be prevented from coming in contact with the live tissue in the periapical area. The point I wish to emphasize again tonight, if possible more forcibly than I have ever done before, is that the remedy, whenever used, *should always be sealed in the tooth with cement.* So-called temporary cements are now on the market and, to my mind, they fill a long-felt want. I am certain that the best results will be obtained in the use of any remedy when we follow the general rule that all remedies should be sealed with cement. This will force us to correctly diagnose the condition and employ the means and remedies indicated in the rational treatment of the case. Until we are willing to spend the necessary time to accomplish this end, we shall not be living up to the highest ideals of our calling. I know that remedies can be hermetically sealed in teeth with gutta-percha or some of the temporary stoppings, and many use the latter plan for sealing purposes in preference to cement for the reason that, should the tooth ache, the dressing is easily removed by the operator or by the patient at home; and the giving of instruction along this line is a daily occurrence in many dental offices. He who uses temporary stopping because it is easily removed, and instructs his patient how to remove it should the tooth ache, either does not understand the condition he is treating or else he has no confidence in his remedy. If the case has been correctly diagnosed and the proper remedy has been hermetically sealed in the cavity without pressure, the tooth will not ache for any length of time—it matters not what the pathologic condition may be.

The therapeutics of acute septic pericementitis or of incipient dentoalveloar abscess differs very little, so far as the local treatment is concerned, from that of putrescent pulps; except in these diseases pain is a prominent factor and the periapical tissues, though infected, not having been broken down into pus, such general remedies should be prescribed as will tend to control the pain and prevent, if possible, pus formation. Here general analgesics, saline cathartics, etc. are indicated. Where the acute abscess has developed to the stage of pus formation, the pus should be mechanically evacuated and the local treatment as outlined for putrescent pulps should effect a cure; unless a sinus has formed through the alveolar process and overlying soft tissue, when it is best to open the mouth of the sinus with a bistoury and force some bland antiseptic solution through the root-canal and sinus—this to be followed by some cauterizing agent such as phenol compound or 95 per cent phenol. It has been common practice in the past, after establishing the sinus and before employing the cauterizing agent, to use a solution of hydrogen dioxid, forcing it through the tract. This is not only unnecessary but is often a dangerous procedure, as it is likely to cause one of the complications we are trying to avoid. If the sinus is not well established the effervescence produced by the nascent oxygen coming in contact with the blood and pus may carry infectious material into healthy tissue and result in bone complication.

In those cases of dentoalveolar abscess which do not yield readily to the above simple treatment, we can suspect some bone or root complication. In such cases it is always best where practicable, and it is practicable here now in Chicago, to have a skiagraph taken to aid in determining the nature of the complication. The skiagraph is not always a positive means of diagnosis, but it is a material aid. Where the root or bone involvement is not too extensive, I have often succeeded in effecting a cure by using phenolsulphonic acid as the cauterizing and stimulating agent (Slide I). This agent, as heretofore made, contained about 15 per cent of uncombined sulphuric acid, which rapidly disintegrated cotton; therefore, it was necessary to place it in the canal on threads of asbestos, wool fibre or silk and force it through the sinus in the usual manner, cauterizing the tract and also stimulating the sluggish cells in the area to healthy activity. It is rather difficult to make pure phenolsulphonic acid so that it may be diluted without separation of the original constituents, and also so it contains a very small percentage of free sulphuric acid. If 95 parts by weight of pure concentrated sulphuric acid is gradually added to 93 parts by weight of pure colorless phenol and the mixture kept at a temperature of 100° C. for a period of twenty hours, we obtain a product which is miscible with water in all proportions. In fact, it requires about 15 per cent of water to keep the preparation fluid. By taking these precautions

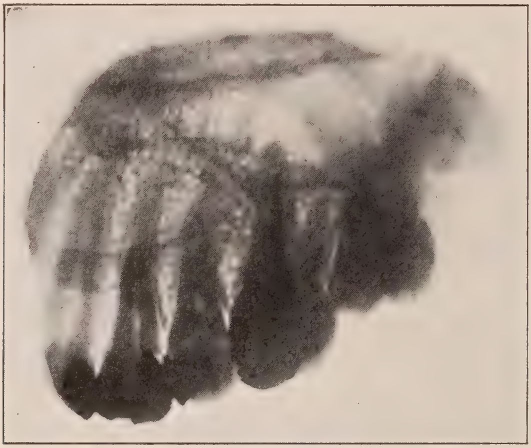

Fig. 1

in making the remedy, we greatly enhance its therapeutic value; and whenever I mention phenolsulphonic acid, this is the product meant. It may be applied to the canal on cotton in the usual manner, but should never be sealed within the tooth. This preparation should not be confused with the so-called phenolsulphonic acid made by mixing equal parts of crude sulphuric acid and crude phenol. The latter is a dark brown liquid and cannot be diluted as water causes a separation of the constituents.

In cases which do not respond to one, two or three at the most, applications of phenolsulphonic acid, it is a waste of time to endeavor to effect a cure by the use of drugs alone. For instance, in the case of a chronic dentoalveolar abscess without a sinus (Slide 2), where the skiagraph shows a roughened or resorbed root-end, we ought not to expect to cure the case by simply sealing remedies within the canals of the teeth. If we do, we are expecting too much of drugs. Again, in a case with a sinus where pus has been discharging for months, and where the skiagraph shows extensive bone involvement, with the not unusual result that the end of the root or process, through which the pus has been discharging, has become roughened, we should not expect to effect a cure by forcing phenol compound or 95 per cent phenol through the sinus, for such agents as these have no action whatever on the bony structures. In these

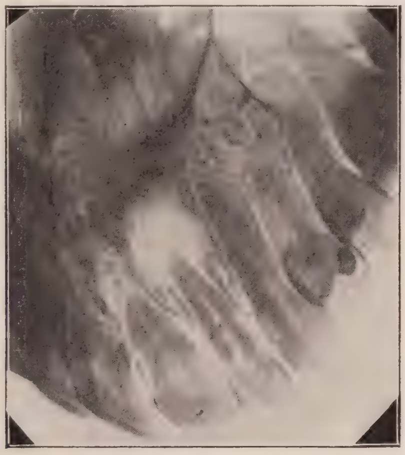

Fig. 2

cases even phenolsulphonic acid, a bone cell stimulant, will often fail to effect a cure. In all such conditions, surgery affords the only certain means of producing a cure. Therefore, I will now direct your attention to the surgical treatment of chronic dentoalveolar abscess.

In all complicated abscesses which will not yield to the medicinal treatment as outlined above, we can often save the tooth and make it healthy and useful by adopting surgical methods. Thorough curettment of the area involved and, if necessary, excision of the root-end will save many teeth, such as have been too frequently lost in the past by extraction. Many dentists have preferred to extract the tooth in these complicated cases rather than undertake to effect a cure by means of surgery. It is because of this fact, and with the hope of stimulating a greater interest in this phase of the subject, that I discuss here in detail my method of treating these cases.

The surgical treatment of chronic dentoalveolar abscess is indicated in those cases where the medicinal treatment has failed to effect a cure, or where the root has been thoroughly filled and the abscess developed subsequently. Especially is surgery indicated in this latter class of cases, if the affected tooth is firm in the jaw and has a good natural crown or carries a well-adjusted artificial crown. It is always best to have a skiagraph taken to aid in determining the area involved and whether or not the root has been properly filled. In those cases of failure to cure by treatment through the canal, and where surgery is to be undertaken, it is best, in my opinion, to fill the canals before operating, especially if the root-end is to be excised; for, while it can be done, it is rather difficult to close the general large apical opening of the canal after excision. This operation should be done under the most aseptic conditions; the hands of the operator and assistant, the site of operation, as well as all instruments used, should be sterilized; and, in the absence of a skiagraph, a thorough exploration should be made that the amount of process and root involved may be noted. The instruments used here were selected for the purpose from the surgical supply houses, some of which I have modified to better meet our demands. They are all metal instruments and can be sterilized by boiling.

The success of the operation will depend entirely upon the thoroughness with which it is done. It is therefore highly essential that the patient should be assured that the operation can and will be performed with *very little pain*. This will be interesting to the patient and will increase his confidence in the operator. It is unnecessary to administer a general anesthetic, as the area can be completely anesthetized by the proper use of local anesthetics. In all such operations I use my own local anesthetic solution, which is practically isotonic to the fluids of the body. The formula contains 5 grains of cocain hydrochlorid to the fluid ounce of freshly prepared peppermint water, with enough phenol and sodium chlorid added to make the solution sterile and, as stated, practically isotonic. It is important that the formula be compounded under aseptic conditions, and if due care is taken in keeping and using the solution it will remain sterile indefinitely. At the time of making the injection 2 minims (0.12c.c.) of a fresh 1/1000 solution of adrenalin chlorid is added to 30 minims (2.0c.c.) of the anesthetic solution.

With a strong, all-metal hypodermic syringe, this solution is injected on either side of the abscess area and also down deep into the pocket. If pressure is made, over the point of the needle, with the forefinger of the left hand as the solution is being injected, only a small amount of the solution will be necessary to anesthetize the part. It is essential that the area be completely anesthetized; for we have assured our patient that there would be practically no pain, and if this assurance is carried out, we are more likely to do our work so thoroughly that there will be no question as to the ultimate success of the operation. It is but natural that most operators will do their work more thoroughly when the factor of pain is eliminated. I desire to speak plainly on this point; for it will be better for all concerned not to undertake the operation, than to fail to do it with that degree of thoroughness which means success.

When the part is anesthetized and only one tooth is involved, a vertical incision is made about one-half or three-fourths of an inch in length, directly over the affected root. In case two teeth are involved, it is necessary to make a circular incision. A bistoury is used for this purpose and care should be taken to make the incision as high as possible (if the case is an upper tooth) so that it stops about on a line with the floor of the necrotic area. If made any lower than this, the healthy process is likely to be left exposed, when it is more difficult for the tissues to heal over this part. After the incision is made and sponged to check the primary hemorrhage, a flat bone chisel (Slide 3), used as a periosteotome, is employed to separate the periosteum from the bone for about one-fourth inch

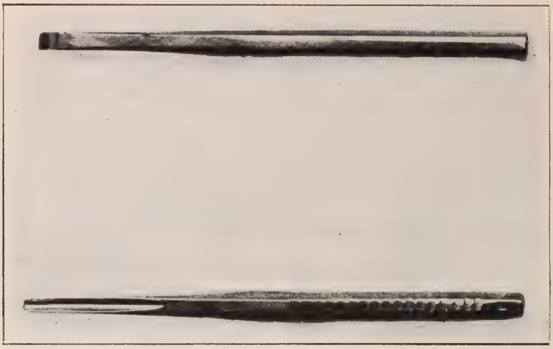

Fig. 3

on either side of the incision. The part is again sponged and a tissue retractor (Slide 4) is firmly adjusted. The arms of the retractor can be spread so that the soft tissues over-lying the bone

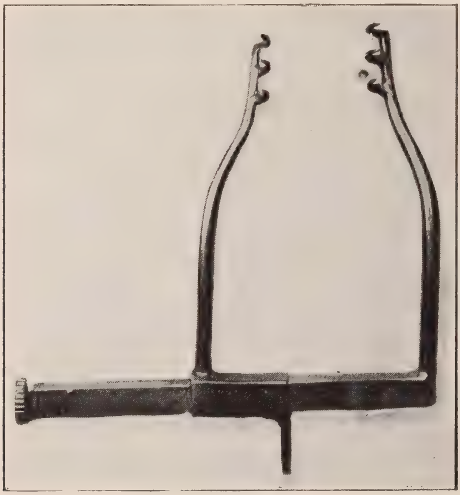

Fig. 4

can be held back, and at the same time the pressure produced controls the hemorrhage from this source. The operation from now on should be practically bloodless; especially is this true, if adrenalin chlorid was added, as suggested, to the local anesthetic solution.

We now have the alveolar process over the root-end exposed to view, unless this has been destroyed by the necrotic process, which is frequently the case. Where it has not been destroyed, it is removed by means of bone chisels and a metal mallet. The use of chisels and mallet was suggested to me by Dr. M. I. Shamberg, of New York. The flat chisel is used across the lower part of the opening and along either side, by the claws of the retractor. To chisel across the upper part of the opening the half-round chisel is used. The loosened bone is now removed, when the root-end and the area involved should be exposed to view. We are now able to make an ocular examination and determine whether the case simply needs curettment or whether the root-end should also be excised. If the necrotic area extend below the apex of the root, it is always best to excise as much of the latter as is involved, being certain to reach healthy bone on either side. It makes no difference whether the end of the root is left flat, round, or slanting, as long as no sharp edges are left and healthy bone is reached. Before excising the end, it is best to drill on either side with a fissure bur. If this is done the root-end, after excision, can be easily removed with an ordinary pair of pliers. The exposed end can now be excised with sharp fissure or cross-cut burs. Several such burs should be in readiness as they soon clod in a wet field.

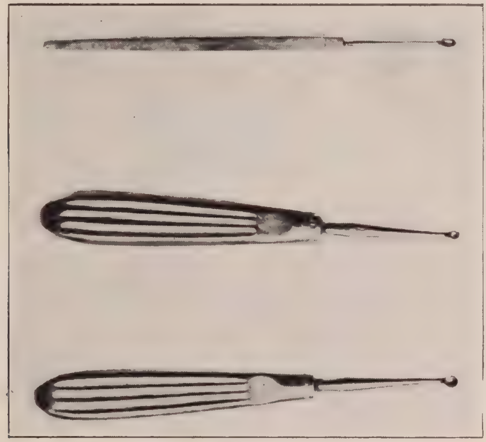

Fig. 5

After removing the excised root-end, which as stated above is an easy matter, the remaining end of the root should be made smooth, using a large round bur for the purpose. The affected area is now thoroughly curetted, removing any carious or necrosed bone. Here bone curettes of varying sizes (Slide 5) are employed. This is the only part of the operation which may be at all painful, and the patient should now be so informed. Even here the curetting can be done with very little pain, if the anesthetic has been injected deeply.

With the end of the root smooth and cut down to healthy process on either side, the area thoroughly curetted, the wound should now be washed with a warm antiseptic solution. This may be done without removing the retractor. Following the washing of the wound, the moisture should be absorbed and the area cauterized with a 50 per cent solution of phenolsulphonic acid. The wound is now packed with sterile gauze, saturated with euroform paste and the retractor removed. The orthoform will absolutely control the pain which nearly always follows the use of a local anesthetic and the cutting in bone, while the europhen, giving off iodin, will stimulate the cells. The oleoagineous vehicle (liquid petroleum) will keep the saliva, laden with bacteria, out of the wound. The patient should be instructed to keep the mouth as clean as possible by using an antiseptic mouth-wash, and after the initial packing, which should be left only twenty-four hours, bismuth paste is injected every few days until granulation fills the cavity with healthy tissue. In those places where the lingual plate of bone has been destroyed and a deep pocket is present, or where the abscess involves the antrum, care should be taken that the root-end, when excised, does not drop into the linqual pocket or into the antral cavity, as it is sometimes difficult to locate and remove. It is a good plan in such cases to drill a small hole through the end of the root through which a small wire may be inserted and bent to form a hook. Then when the root-end is excised, it may be easily removed with the wire without danger of being lost.

I will now throw upon the screen skiagraphs of a few cases which I have recently treated wherein the skiagraph has been of material aid, not only in the diagnosis but also in suggesting the proper treatment for the case.

Slide 6. When this case first presented, in the mouth of a young lady eighteen years of age, a second deciduous molar was in position, but very loose. The first permanent molar carried a gold crown which had been on the tooth for three or four years. Pus was flowing from around both the first permanent molar and the second deciduous molar. The loose deciduous molar was extracted, which seemed in no way to lessen the amount of pus. The skiagraph was then taken for a two-fold purpose: To ascertain the cause of the abscess and also to see if the second bicuspid tooth was non-erupted. The picture shows the absence of the bicuspid tooth and that the dentist in opening into the lower first molar in devitalization, had drilled through the floor of the pulp chamber and exposed the tissue between the bifurcated roots; and as a result the abscess developed. The case was treated by sterilizing and stimulating the necrotic area between the roots with phenolsulphonic acid, subsequently flowing eucapercha compound (gutta percha dissolved in Eucalyptol Compound, which contains menthol, thymol and eucalyptol) over the puncture and packing firmly with warm base-plate gutta-percha. By observing the second molar shown in the picture, we notice the unusually small amount of tooth-structure between the floor of the pulp chamber and the bifurcation of the roots; yet it is unnecessary to have the result as shown in the first molar.

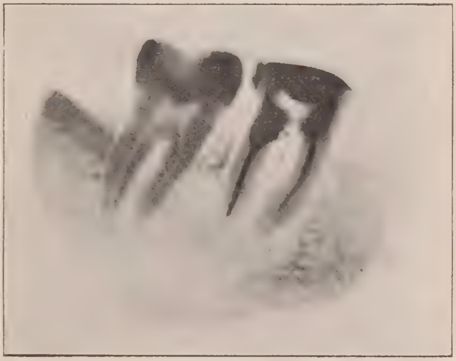

Fig. 6

Slide 7. This picture shows a sequestrum which was exfoliated by Nature from the lower jaw. This result followed the extraction of a lower second bicuspid root during the acute stage of a dentoalveolar abscess. A mixed infection followed the laceration of the tissues, the sublingual glands became involved, the patient was confined to his bed for over two weeks and his life was in danger. You will notice that the sequestrum contains the mental foramina, which means, of course, that the inferior dental nerve, artery and vein were severed. The lip on the affected side was partially paralyzed for a period of two or three years; and in opening into the first bicuspid for the purpose of pulp removal for bridge-work, six months after the infection, the pulp was dead and just beginning to undergo the process of decomposition. This case illustrates the danger of extracting a firmly imbedded root during the acute stage of a developing abscess.

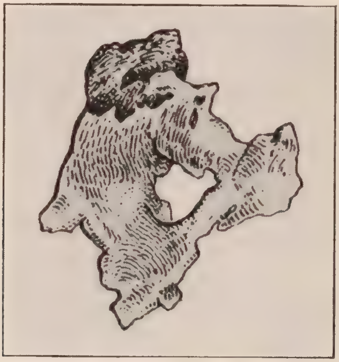

Fig. 7

Slide 8. Every acute and chronic dentoalveolar abscess invites bone complication. This picture shows an upper second bicuspid exfoliated by Nature with the entire surrounding alveolar process attached. This result followed a slight traumatic injury to the part, shortly after the pulp had been removed by pressure anesthesia. The first bicuspid ultimately became so loose that its removal was necessary. In this case I was able to elicit a previous history of syphilis, the disease having been cured for a number of years. Knowing the care which was taken in removing the pulp in this case, I am positive that it is a good example of how bacteria present in the tissues, through the medium of the blood or lymph, can produce an abscess in a part, the vital resistance of which has been lowered by systemic disease or other agencies. I know that this is a dangerous doctrine to enunciate, for it is so easy to convince one's self that the abscesses which develop on teeth treated by him are traceable to this mode of infection rather than to our careless methods of root-canals treatment; yet such infections may and do occur. This case also illustrates how syphilis stamps its indelible effects upon the individual thus afflicted, even though the case is cured in the ordinary acceptation of the term. Any subsequent infection, like in dentoalveolar abscess or pyorrhea alveolaris, is likely to extensively involve the osseous structures, and yield to the usual treatment with difficulty.

Slide. 9. This case illustrates a quite common complication, where the abscess discharges lingually and involves the vault. The dense fibrous tissue covering the vault is very tough and pus often separates the periosteum from a considerable area of bone before ultimately discharging into the mouth. Generally a bistoury is required to evacuate the pus. In this case I curetted through the lingual opening and injected bismuth paste. This failed to effect a cure and it was necessary to open from the labial, excise the root-end of the lateral incisor and thoroughly curette the affected area, which in this case extended under the floor of the nasal and antral cavities. The picture shows the case after the surgical operation. In excising the root, the end dropped into the lingual pocket, where it was difficult to find and remove. The skiagraph aided materially as it verified the presence of the root-end and its location.

Ftg. 8

Slide 10. This picture illustrates a case where two teeth were involved with a common sinus. Both the central and lateral carried perfectly adjusted porcelain crowns. The skiagraph not only shows the involvement of both teeth, but also that the roots are perfectly filled. The treatment here is purely surgical and means the curettment of the affected area. It is not necessary in this case to excise the root-ends.

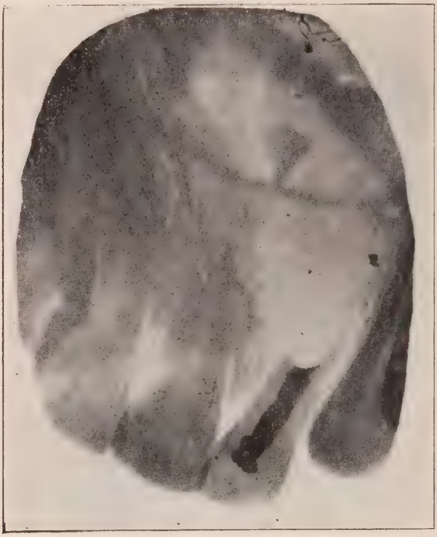

Fig. 9

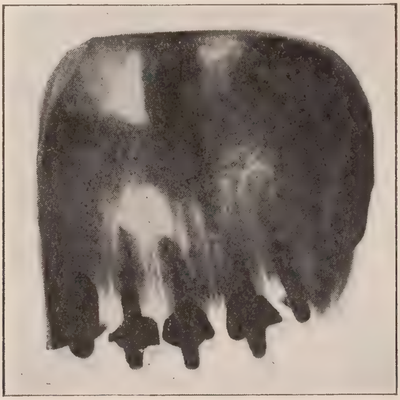

Fig. 10

Slide 11. This picture again illustrates the value of the skiagraph which was borrowed from Dr. F. K. Ream. This is the only case shown which I did not treat myself; hence the history is negative. The skiagraph shows that the root had been imperfectly filled. It also shows the folly of trying to effect a cure by blindly injecting such agents as bismuth paste through the sinus into the affected area. The root carried a well adjusted porcelain crown which must be destroyed and the canal reopened, when one or two treatments of phenolsulphonic acid, forced through the canal and

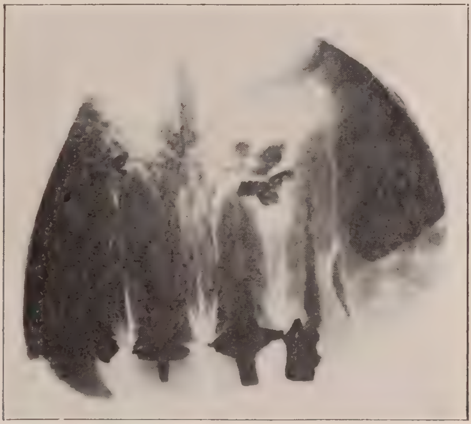

Fig. 11

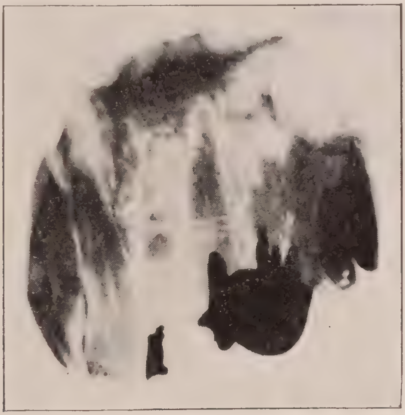

Fig. 12

sinus, should effect a cure. Had the skiagraph shown that the canal was properly filled with gutta-percha external curettment would have been all that was necessary, thus the removal of the crown would have been avoided. In fact had the canal been properly filled, the abscess, in all probability, would not have developed.

Slide 12. This picture shows a case of suspected antral involvement. There was no external discharge of pus, but severe neuralgia and some of the other subjective symptoms of antral disease. The cuspid and first bicuspid on the affected side carried a porcelain and gold crown, respectively. The gold crown had been on for years, while the porcelain crown was only adjusted about three months previous. The patient gave a history of having had the cuspid root treated for months before the crown was finally set, and that she had suffered continuously since. The skiagraph shows that the antrum is not involved; the canal of the cuspid root not filled, which was found to be putrescent, and a necrotic area about the apical end of the first bicuspid. Both crowns had to be removed, the canals were sterelized with formocresol and refilled with gutta-percha, when new crowns were adjusted. The antral symptoms subsided and the neuralgia gradually passed away.

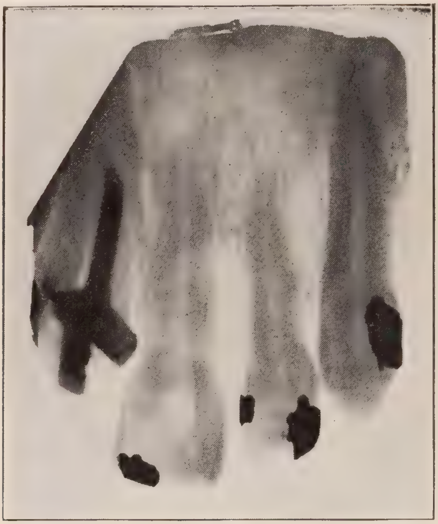

Fig. 13

Slide 13. This picture is not a case of dentoalveolar abscess, but rather an abscess of the pericemental variety. I am going to refer to it because it shows the dire result of a mistaken diagnosis. The abscess occurred between the roots of the upper right central and lateral incisors, with the sinus opening on the labial, midway between the gum margin and the apex of the central. The case gave a history of having received a slight blow on these two teeth about two months previous. The dentist, thinking the pulp in the central was dead, opened into the vital tooth. The patient losing confidence then went to her former dentist who attempted to remove the exposed pulp by pressure anesthesia. It was difficult to anesthetize and a remnant was left in the apical area. Acute apical pericementitis followed and nitrous oxid and oxygen was administered and the remnant removed. This only aggravated the pericemental trouble; the cavity was left unsealed and the crown of the tooth became dark blue in color, nearly black. The patient was now referred. Two treatments of phenol compound, both sealed with cement, cured the pericementitis, when the root was carefully filled. Subsequently the tissue about the abscess was anesthetized, the area curetted and the wound packed for twenty-four hours with sterile gauze, saturated with euroform paste. Two subsequent injections of bismuth paste cured the case; after which the color of the tooth was restored by sealing caustic pyrozone in the cavity three times, when a gold inlay was inserted. The patient in this instance was a lady, and when we recall that the tooth involved

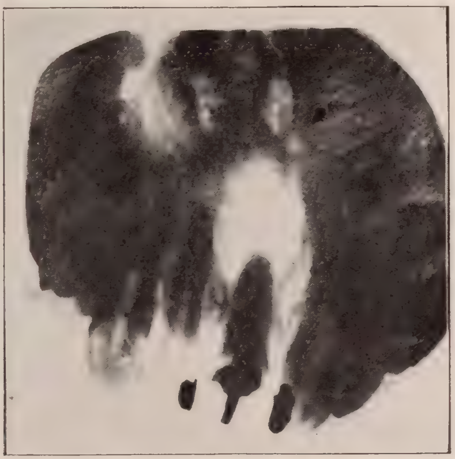

Fig. 14

was perfect to begin with and an anterior one, the seriousness of the mistaken diagnosis becomes all the more apparent.

Slide 14. This picture shows a chronic dentoalveolar abscess on an upper right central incisor. The canal was filled and the root carried a good porcelain crown.

Slide 15. This picture shows the case after excision of the denuded root-end and the curettment of the affected area.

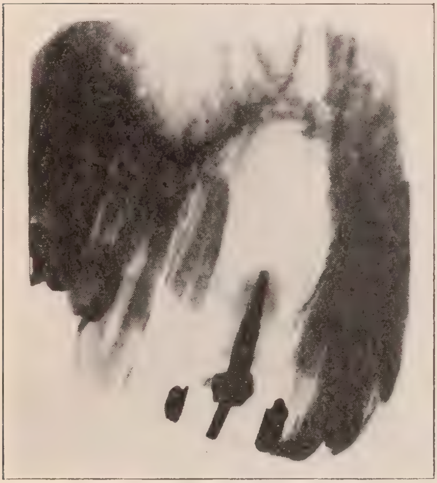

Fig. 15

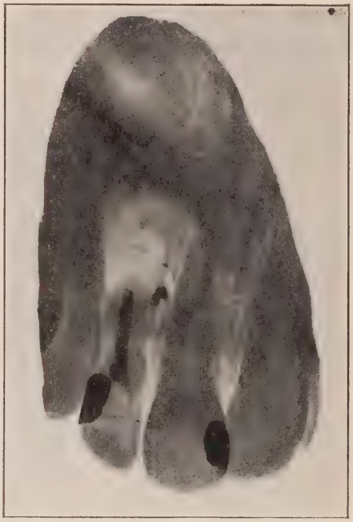

Fig. 16

Slide 16. This picture shows another case after root-excision. The dark spot on the side is bismuth paste.

In closing, permit me to say that I have endeavored to show you a variety of cases from my own practice, which were more or less complicated, and to give you the treatment of each case. I have gone into the details of the surgical treatment with the end in view of teaching you how to care for these complicated conditions without extracting the affected tooth, which, though sometimes necessary, is too frequently done. If I have accomplished this end, I am indeed happy.

SOME EXPERIMENTS IN TREATING AND FILLING ROOT CANALS.*

BY GEO. W. COOK, CHICAGO.

The only excuse that I can offer for this paper is that, in experiments and in practice I have found some facts that are to a great extent at variance with the generally accepted rules laid down in the treatment and filling of root canals.

First, I wish to give as briefly as possible, some of the methods used in the experiments. Extracted teeth were taken, the contents of the pulp canals were removed with a broach, as nearly as possible, like the technique that is followed in the mouth. The organisms most commonly used for the inoculation of the canals were the streptococcus, the typhoid bacillus and the anthrax bacillus. These were used because of some of the important distinctive properties of each organism, and with reference to the effect that certain agents have on these microorganisms. Three teeth were inoculated with the same organism and in the same way. One tooth was suspended in the culture media, one tooth was allowed to lay in a petri-dish, that had previously been sterilized, and one tooth was treated with the antiseptic agent and suspended in another beaker or dish that contained culture media. Every few hours the teeth were taken from their respective places and the root canals were inoculated with a sterile platinum wire containing 10 c. c. of beef bouillon. This process was done under as nearly aseptic conditions as possible. The teeth were sterilized and all the apparatus and materials used were handled most carefully.

The agents used for the experimental tests have been used extensively in the practic of dentistry for a great many years, therefore it is unnecessary to go into detail explaining results that were found in many of the agents tested. The teeth that were inoculated had agents placed in them on a pledget of cotton in the same way as we would treat teeth in the mouth. The apical ends of the teeth were filled with gutta-percha, cement, gold, and various other filling materials that are commonly used in the filling of root canals. Gum sandarac, and various means and methods were tried, with a hope that we might not only determine the value of the agents used to disinfect the root canals, but that we might determine to a more or less extent the value of the materials used in the filling of root canals as to their preventing the passage of bacteria from the inner portion of the tooth into the culture media. I will here remind you that the tooth was suspended in the culture media to about where the gum-line would extend on the tooth, just as if it were fixed in the alveolus in a normal way. The crown of the tooth was not allowed to touch the culture media, and any infection that passed through into the culture media had to pass through the apical foramen. I cannot recall a single incident in which the organism did not pass through the root canal into the culture media; and the cultured colored growths would appear in the media almost as quickly as they did in the control. From the many root canal fillings that were made in this and various other ways, like that of filling the root canal complete and putting bacteria in the pulp chamber and suspending the tooth in the manner previously described, infection invariably would take place around the apical end of the root.

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*Read before the Odontological Society of Chicago, March, 1911.

These tests have demonstrated conclusively to my mind that it is not possible to fill a root canal so that bacteria cannot eventually pass through the canal. Chloro-percha prevented fairly well the passage of bacteria, but apparently as soon as the chlorin in the chloroform disappeared from the root canal filling, the bacteria were then very profusely disseminated around the apical end of the root.

Just in this connection I want to call attention to one fact, that the chlorin in the chloroform apparently is separated from the CH group in the chloroform and the chlorin has some affinity for the gutta-percha, in other words, the gutta-percha in the solution is a catalyzer, as it is called in chemistry. Chloroform acts upon gutta-percha in such a way as to bring about an undivided state. Gutta-percha acts upon chloroform as to make it less decomposable in the free oxygen of the air, but in the division of the methane in the chloroform the chlorin remains much longer in the gutta-percha; in other words, the CH group is liberated much faster than the element chlorin or the CL group. So, in all events, whatever preparation of gutta-percha is used there is no question in my mind, from experiments with many agents that have been suggested for filling root canals, that gutta-percha has a great advantage over most of them. One author tells us to slightly moisten the dry sterile canal with eucalyptol, remove all excess, and with a properly shaped root canal plugger select a piece of gutta-percha, slightly heat and pack into the apical end of root, and complete the operation by packing piece upon piece until the whole canal is tightly filled, using hot air to soften when needed. The many absurdities are extremely apparent in this paragraph—a root canal plugger should be used to pack piece upon piece of gutta-percha in a root canal. First, in my experiments with root canal fillings, it is absolutely impossible to get root canal pluggers that are suitable and can be adjusted to more than ten per cent of the various root canals that we are called upon to fill. Not only my own experiments but those that were made by the best operative dentists, as exhibited by Dr. Hanaford, clearly demonstrates that we do not fill root canals very perfectly. The question has more than once been asked, how is it that we save so many teeth that have lost their pulps as we do? Observation and experience have clearly shown us that the filling of root canals is not the sole salvation of pulpless teeth. The salvation of pulpless teeth is the rendering of the pulp canals and all of the dentin of the tooth as nearly sterile as it is possible with the agents that we have at the present time at our command.

There has much been said regarding the antiseptic and disinfectant properties of the etherial oils, as well as the power they possess in causing extreme irritation. This is all of great importance in treating the root canals of teeth. These investigations certainly have been in the line of coming to a more definite conclusion relative to the value of these so-called etherial compounds with reference to their action on bacterial life and their irritating properties. While the antiseptic power is of great importance, their irritating power is an objectionable feature when confined in pulpless teeth. Those volatile oils that are made up of a hydrocarbon or the terpine group are the ones that possess the greatest, if not all, antiseptic properties. They are very difficult to break up and they liberate the terpines in such a way that they act on the bacterial substance. This can only be done with the use of alcohol, ether and chloroform, which are most essential in dental therapeutics. And to this end we have experimented and tested their efficiency for the destruction of bacteria.

A preparation of gutta-percha that was suggested by Dr. R. C. Cochran, some years ago, led me to some of the many experiments I made along this line. It opened up the possibilities of a new root canal filling that seemed to suggest to me many important features. Undoubtedly you are all familiar with the preparation of this agent, but I want to suggest it again for a little farther consideration. Dr. Cochran's method is simply as follows: Dissolve gutta-percha in chloroform and when the excess of chloroform has evaporated add eucalyptol, and as much thymol is added to this as the oil will take up. Then grind this compound up to a consistency that can easily be handled, leaving it in this state until it is to be used. But in these experiments I used the eucalyptol without the thymol. If the canal has been sterilized the thymol is too irritating and is unnecessary. Now what really happens in this preparation is simply this: A certain portion of the chlorin remains in the gutta-percha and the essential oil helps to retain that substance in a combination with the gutta-percha and renders it into a workable state. The chlorin that remains in the gutta-percha and the terpine that is in the essential oil combine and form a dihydrobenzol, which has very efficient antiseptic properties. Dihydrobenzol also has some irritating properties due to an oxidizing process that goes on for some little time, especially if there is much organic moisture in the root canal. I don't wish to be understood that this substance has a complete destructive power on bacteria, and especially on the spores of bacteria, but that it has a strong inhibitory action, and with some bacteria a germicidal power. The staphylococcus and the typhoid bacillus were destroyed in root canals by this agent, but the anthrax bacillus would after ten or twelve days develop in the culture media.

Some ten or twelve years ago I introduced to the dental profession trikresol, chinosol, and phenol sulphonic acid in the treatment of pulpless and abscessed teeth, as well as for the treatment of pyorrhea alveolaris. These agents had an extraordinary germicidal power, especially the latter, in pyorrhea pockets. Chinosol soon proved to be a discoloring agent and for the average dental practitioner it cannot be used except in those teeth of which the crowns are to be removed. But trikresol has been demonstrated to be one of the most stable, least irritating, and mose efficient germicide that has ever been suggested in the treatment of pulpless teeth.

In experiments that were carried on some twelve years ago creosote and formalin, equal parts, suggested itself to my mind, but it was soon proven that it did not have sufficient germicidal properties, and besides it was an extremely irritating agent. After the introduction and failure of creosote and formalin I then found cresol to be strongly antiseptic, and I tried the trikresol and formalin. Chemical analysis shows that these two compounds are very closely allied to each other, and their antiseptic properties are about the same. When the essential oils are dissolved in alcohol or chloroform they also have practically the same chemical properties, but they are much more germicidal in the root canals. Oil of cassia and oil of peppermint dissolved in alcohol and placed in root canals have a decided antiseptic property and are less irritating. I will here give a few agents in the order according to their efficiency in sterilizing root canals: trikresol, balsam of Peru, saturated solution of oil of cassia in alcohol, saturated solution of benzoic acid in alcohol, formalin, ether and chloroform. These were most decidedly the agents that we could rely upon under ordinary circumstances in preventing infection from passing through the root canals. None of these agents proved absolutely efficient except trikresol and balsam of Peru. Chinosol was excluded from the list because of its discoloring properties on tooth substance.

I will here give the method and agents proven to be the most efficient. The teeth containing the anthrax bacillus were sterilized with two treatments, the anthrax bacillus were sterilized with two treatments, the anthrax bacillus being introduced into the teeth on a Monday afternoon with one drop of beef bouillon placed in the teeth. On Tuesday afternoon the teeth were treated in the usual way with trikresol. On Thursday morning of the same week the teeth were again treated with trikresol; the root canals were moistened with balsam of Peru and filled with Cochran's preparation of gutta-percha and a canal point. Teeth that were filled in this way were kept under observation for twenty-one days and they did not infect the culture media. However, you must not understand that this proves that teeth filled in this manner might never become infected with this organism, for it has been shown that the spores of the anthrax bacillus will live for nine years on silk thread or in dried gelatin. But this was the strongest evidence that we obtained with reference to the infection being destroyed by the agents used. In some of these teeth we removed the root canal fillings forty days after the twenty-one days of observation of the teeth in the culture media, and we attempted to make cultures from the root canals but failed to find any of the anthrax in the teeth. Forty-eight per cent of the teeth treated with the essential oils dissolved in alcohol and tested in the same way just given, proved to be completely sterilized. Seventy-six per cent of the teeth treated with the straight oil of peppermint, oil of cassia, and oil of eucalyptus, the culture media became infected with the organisms that were placed in the teeth. Eighteen per cent of the teeth that were treated with the essential oils straight and filled with the Cochran preparation were sterilized. I might say here that seventy-six per cent that were not sterilized with the straight oils were filled with gutta-percha and chloroform in the usual accepted manner. Equal parts of trikresol and oil of cassia and powdered calcium phosphate mixed into a paste and pumped down into the root canals, followed with a gutta-percha cone, proved the next best agent in preventing infection. Only eleven per cent of these teeth infected the culture media. Teeth treated with trikresol and formalin, and creosote and formalin (I put these two together because they proved identically the same thing) had fifty-three per cent of infection when the roots were filled with chloro-percha in the usual manner, and thirty-nine per cent when filled with the Cochran preparation of gutta-percha.

I believe that the filling of root canals is not so absolutely essential in all cases. I mean by this that if we get a root canal fairly well filled so as to exclude the organic moisture, which is principally serum, from flowing into the canal and we have the pulp canal sterilized, pulpless teeth will serve a very important place in the economy of man. I might state that the infected teeth treated four or five days apart didn't prove as efficient as those that were treated every third day. This illustrates that the time of treatment also plays an important role. When a surgeon operates under septic conditions he has his patient's wounds dressed oftener than five or six days apart; and what proves to be of surgical importance to septic wounds on other parts of your body is also forcefully illustrated in the treatment of pulpless canals.

I do not wish to burden you with a long list of experimental data, but I have given you these figures which are open to criticism on many points but may prove of some value if they are systematically studied, and they may serve as a guide to direct our methods and treatment of pulpless teeth.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held March 21, 1911, with the President, Dr. Frank H. Zinn, in the chair.

Dr. J. P. Buckley read a paper entitled "The Rational Treatment of Dento-Alveolar Abscess with Root and Bone Complications."

DISCUSSION.

Dr. J. A. Stoeckley, of South Bend, Indiana:

I am glad of this opportunity to discuss Dr. Buckley's paper, not because I will be able to differ with him in any respect, or show any defects in his theories, but because I consider him one of the foremost men in our profession today, and, because, in a small way, I will be able to call attention to the credit that is due him. We owe him a debt of gratitude for giving us the benefit of his life's work gratis, and those of us who have put his methods into practice for the past few years have reaped most beneficial results.

I consider this phase of dentistry so important, and the essayist so exceptionally capable of handling it, that in all dental society meetings where I have any part in the arrangement of the program, I always endeavor to have Dr. Buckley on the program.

Furthermore, I consider this branch of dentistry to which Dr. Buckley has devoted almost exclusively the last twelve or fifteen years of his life, the most important of all, and that part of my practice for the past few years has been completely revolutionized, due to the methods advocated by him. I will even go a step further in my assertions (which will no doubt meet with contradiction) and say that the entire new inlay system discovered and put into practice generally, within the last few years, is not one, two, three, with the new ideas and methods advanced and put into practice by the essayist relating to the general treatment of teeth, both medicinal and surgical. The most perfect inlay and the most artistic cast crown or bridge, would be of absolutely no value if over an improperly treated tooth.

Again, any dentist with the slightest mechanical ability is able to do this inlay work with some degree of success, but to scientifically treat the diseases of the teeth and mouth successfully, both from a medicinal and surgical standpoint requires a deeper scientific study and training and closer application.

In regard to the actual discussion of this paper, as stated before I cannot differ with the essayist as I have learned by actual experience in my practice that all he has said this evening is correct, so I will only endeavor to call special attention to what I consider the most important points:

I consider the diagnosis one of the most important, and if you will take up the theories advocated by the essayist, in my opinion when you make a correct diagnosis your success in the case is practically assured. I heartily agree with him that the average dentist pays too little attention to oral pathology and the study of bacteriology as a correct diagnosis would of course be much easier to make.

The essayist brought out a good point which is seldom mentioned among dentists, when he said, that, when bacteria are normally present in the tissues of the body, infection sometimes takes place through the lowering of the vital resistance of the cells from one cause or another. Too much stress cannot be laid on the preparation and sterilization of the mouth and instruments and the operating stand and bracket table, and the surroundings in operating room when performing even the most simple operation in dentistry, particularly where the injection of a local anesthetic is employed, as I believe that nine-tenths of the trouble resulting from its use is due to the lack of sterilization, instead of the drug employed. If dentists would spend more money in equipment to make this complete sterilization of their operating rooms possible, I am sure that patients would be willing to pay larger fees. I am a firm believer in prevention, particularly in reference to the subject under discussion this evening. I believe this prevention should be carried to the extent of extirpating a great many more pulps than we do, instead of taking a chance on the pulp with the usual results, nine times out of ten, of a dentoalveolar abscess making its appearance at a later date.

The March issue of *Items of Interest* has an excellent editorial on the subject of "Prevention and Conservation." I will quote just a line or two of the important points:

"The building of secondary dentin against the approach of the 'enemy' decay is a pathological rather than a physiological action of the pulp. The nearer the approach of the decay, the more disturbed becomes the pulp.

"In such cases, when in doubt, dentists often decide to give the pulp the benefit of the doubt, whereas in all such conditions they should give the patient the benefit of the doubt by removing the pulp before filling the tooth.

"Conservative treatment of the dental pulp in the future should mean the complete extirpation of all pulps where the slightest doubt of healthy vitality enters the mind of the operator. Let us apply the word conservative to the treatment rather than to he pulp itself."

Another great mistake of the average dentist is the failure to open up the teeth sufficiently to see the mouth of the canals direct with the eyes instead of through the mouth mirror, then both the work of treating through the canals and, later the root filling, can also be done more thoroughly. If, however, there are any particularly fine or tortuous canals that cannot be perfectly filled, these should, by all means, be so recorded that at a later date, if this root gives trouble it can be amputated. Since I have taken time to find out the real conditions of the pulp, I have had fewer failures and more successes.

With a putrescent pulp with gas end products, I have found the formocresol treatment always successful, but I have always followed closely the instructions given by the essayist, and I never fail to seal it in with temporary cement, in fact, I have reached a stage where I am practically using cement almost exclusively for sealing purposes.

I have always met with success in the treatment of the dento-alveolar abscess with root and bone complications, where the root and bone involvement was not extensive, by the use of the phenol-sulphonic acid treatment, as outlined by the essayist. I even met with success in these cases several years ago when the essayist first suggested this remedy and we were then using the crude sulphuric acid and the crude phenol. I remember this distinctly as at that time I purchased the crude drugs separately and made the mixture or solution myself.

I can also remember my first patient at that time who had a chronic dentoalveolar abscess with a fistulous opening with slight bone involvement from the upper right lateral incisor, which had been treated by several dentists in Boston without success. After several treatments with the crude acid I effected a complete cure. Of course in my later work I have been using the formula given this evening, but I do not attempt to prepare this acid myself, or even to have my druggist do so, as I find by experience with all the different formulas given us, that I can get more perfect preparations by procuring the remedies through a reputable chemical and pharmaceutical house. And I might add here that I am using daily in my practice all or every one of the formulas given by the essayist, and you can readily see that I am, therefore, speaking from actual experience.

I might also add that I have never used any remedies in my practice of which I do not know the formula, and what is more, I never expect to, and I think that is one of the things for which half of the members of the dental profession deserve severe criticism.

In regard to those cases which will not yield to medical treatment, when there is an extensive involvement of root and bone, will say, like many other dentists, that I have been guilty of extracting some of those teeth.

But last October, when the Northern Indiana Dental Society met at South Bend, at which time I was supervisor of the clinics, I was fortunate enough to secure Dr. Buckley as one of the clinicians, who, at this time, assisted by Dr. E. W. Elliott, performed several operations to effect a cure of chronic dentoalveolar abscesses with root and bone complications. In addition I persuaded him to perform a similar operation on one of my private patients in my own office, which consisted of a curettment of the bone and the excision of the root-end of an upper central which carried a well adjusted porcelain crown. The abscess was caused by the root not being filled to the apex. This root-end was removed with the pus sack still clinging to it. Results in this case were perfect. After witnessing this operation I resolved that I would no longer belong to that class of dentists that the essayist referred to this evening, where he states,—"Many dentists have preferred to extract the tooth in these complicated cases rather than undertake to effect a cure by means of surgery." And I also resolved that I would not resort to the turning over of these cases to some one else whom I considered more expert, as I believed I could become expert myself in this treatment, and I therefore immediately ordered from a surgical house in Chicago, an exact duplicate of all the instruments the essayist used in these cases, and my efforts have been rewarded by having several cases since then which I treated and operated on with successful results.

One of the cases was chronic; discharge lingually; the tooth affected was the upper left lateral, and after having a skiagraph made discovered that the root was not perfectly filled, and the root-end and bone involved; by lancing I established free drainage, and then I curetted lingually and also excised the root-end, operating through the labial surface. The root now carries a porcelain crown.

One of the other cases came to me during the acute stage, but with a swelling already developed lingually; this was the upper left cuspid and carried a gold crown as an abuttment for bridge work; had skiagraph made; the tooth had been crowned over live pulp; by the aid of a bistoury I disposed of the pus and secured free drainage and I also discovered the bone lingually involved. I then opened through the artificial gold crown and the tooth from the lingual; made a very large opening; mechanically cleaned the canal, and then with a syringe forced an antiseptic solution through the canal and sinus (my solution was not peroxid of hydrogen) after that I curetted the sinus lingually and then forced phenol-sulphonic acid through the canal and sinus, then packed the latter with nazeptic wool saturated with euroform paste and sealed in the canal with cement, a dressing of cotton moistened with phenol compound. In twenty-four hours I changed the dressing in sinus; after this injected bismuth paste several times and healthy granulation filled in and sinus completely closed. Of course in the mean time I had changed the treatment in the canal, and I then subsequently filled the root and put in a gold inlay to replace the opening I had artificially made through the gold crown and natural tooth on the lingual surface.

Now, judging from my own experience, and looking at it both from a sense of professional duty and from a business and financial standpoint, I would say that any one here this evening who has not or will not attempt this treatment with the first case that presents itself in his practice, will be the loser.

I can truthfully say that the successful treatment of these cases has brought more high class patients to me than the most beautiful gold inlays or the most artistic porcelain crowns that have gone out of my office, and I am doing my share of gold inlay and gold cast base porcelain crowns. It is easy to see why this medicinal and surgical treatment of these complicated abscess cases will bring more favorable comment than the artistic mechanical work. Ordinarily, intelligent patients do not care to tell that an artistic porcelain crown, that cannot be distinguished from their own teeth, is not their own natural tooth, but if they have had considerable trouble and pain with what seemed to be an incurable abscess, and you effect a cure by this surgical method, then they begin to class you with the skillful general surgeon who performs successful operations for appendicitis, etc.—and, gentlemen, it is about time that the dental profession is placed on an equal basis with medicine and surgery.

Before closing I would like to ask the essayist to explain why, in Slide No. 11, if the tooth carried a well adjusted porcelain crown, and if the post of same was not too long, and if the root filling extended to, or slightly beyond the end of the post, but still not to the apex of the root, why it would not have been advisable and preferable to excise the root-end and not to destroy the crown?

In regard to Slide No. 6, there is no excuse for the carelessness of drilling through the floor of the pulp chamber. There hardly is a work from any of our eminent dental authors that does not mention,—"do not use a bur in the floor of the pulp chamber." Doctor Black mentions this in his recent work on "Operative Dentistry." Dr. C. N. Johnson also mentions it in his work on "Operative Dentistry," and the essayist likewise calls attention to it in his recent work on "Dental Materia Medica and Therapeutics."

In conclusion, as you will note by discussion, I have this subject deeply at heart, and feel that if I have helped the cause or the question in the remotest degree by this discussion, my effort will not have been in vain.

Dr. T. L. Gilmer:

A story was once current in the West Point Military Academy that on the entrance into that school the cadet was given a small hammer and seated by an old cannon and told to continue striking one of the trunnions until it should be broken off. By continuous effort for days, the metal became crystallized and the trunnion gave way, separating it from the cannon. This, it was said, was to teach the student the importance of perseverance. Dr. Buckley has been hammering away a long time at the subject he has presented tonight and if he continues to whack away at it we may expect that he will finally get the better of it, though he may change some of his present conclusions. All investigators find this necessary and it is in no wise against them. We cannot but admire the persistent spirit of the essayist. If each member of this great society should select some one of the knotty problems in dentistry and study it honestly, persistently and intelligently, the progress made by dentistry as a result could not now be estimated. In my discussion of the subject I shall only touch on a few of the points presented.

I am quite in harmony with the essayist relative to the importance of correct diagnosis before treatment. We cannot study our cases too well. To become a good diagnostician requires fundamental knowledge and painstaking examination of many cases. Impirical practice falls far short of scientific methods which arrive at a correct etiology and positive pathology, which means diagnosis, before putting into practice means for a cure. It is not enough to recognize a lesion, we should know the pathology.

The channels through which bacterial invasion causing alveolar abscess comes are interesting. Those who have closely observed such abscesses must know that bacterial access to infected areas does not always come through the teeth or mouth, as in some instances no cavities in the teeth are found and no break in the continuity of the gum tissue overlying or about the teeth is recognizable. Therefore we must conclude, when alveolar abscess results under such circumstances, that the infection is hematogenous. It does not necessarily follow that because there are pyogenic bacteria in the blood or lymph streams, that infection must necessarily result. The conditions must be favorable for infection to take place. Pulpless teeth with no root fillings may not cause an abscess for years, even when bacteria are present in the blood or lymph streams. There must be a sufficient number of bacteria to produce sufficient toxic material to destroy the already enervated cells at the apex of the roots of such teeth. Phagocytosis must be low enough to permit the bacteria to develop in sufficiently great numbers to produce an abscess.

It was well that the essayist cautioned against the use of oxidizing agents, such as Hydrogen dioxid, in the treatment of alveolar abscess. I have recently seen a case of extensive osteomyelitis of the jaw, caused by injection of pyrozone in a pus pocket. Such drugs, in my opinion, are of doubtful value and certainly very dangerous if carelessly or ignorantly employed.

As an aid to diagnosis in chronic alveolar abscess the skiagraph is invaluable. I think the late Mr. Fuchs made for me the first skiagraph of the jaws that was ever made in Chicago. He was recommended to me for this purpose by Dr. L. L. McArthur of this city who told me of its value in surgery as an aid to diagnosis. I have been using them ever since with great profit to myself and patients.

In chronic alveolar abscess the skiagraph and the sharp steel probe are my greatest dependence for diagnosis. The condition of the bone and root of the tooth are easily made out by the sharp steel probe when the sense of touch has been sufficiently educated.

In chronic alveolar abscess we may have a purulent discharge, a sero purulent discharge or macroscopically only a serous discharge. In the purulent cases we may generally, but not always, effect a cure by medication through the root canal, but if there is a carious condition of the bone, indicated by the sero purulent or serous discharge, surgical interference is necessary.

Surgical treatment of abscesses of the jaw with resection of the roots of teeth for the cure of persistent alveolar abscess is very old, but strange to say since it is such a valuable method of treatment for those cases which demand it, it is yet but slightly employed. I can only account for it through the timidity of dentists to attempt even the most minor surgical procedures. I have written about it, talked about it and taught it for many years.

When I was a student in the old Missouri Dental College in 1870, Dr. Homer Judd was teaching and practicing it. You will find a series of articles running in the *Missouri Dental Journal* in 1870, on alveolar abscess by Dr. Judd, which are classics. It is in this series of articles, page 367, September number, that he describes amputation of roots of teeth and curettment of bone for the cure of chronic alveolar abscess.

I was interested in Dr. Buckley's surgical method and after treatment for chronic alveolar abscess. I have not used burs for excising roots of teeth for some time. I do use cross cut fissure burs to enlarge the opening through the labial or buccal plate of bone where Dr. Buckley uses the chisel. For excising the roots I get better results from the use of the bibevel drill. I first drill directly through the root at the point to be cut off, then without fully removing the drill from the hole made, cut first to the right and then to the left and quickly sever the root. The drill does the work more rapidly and there is no clogging or heating, as with the bur.

The cavity in the bone is then curetted until solid healthy bone is reached, the end of the root is smoothed by a flamed shaped bur, the cavity irrigated with saline solution, and packed loosely with a small strip of iodoform gauze. I remove this dressing on the third day, irrigate again with the saline and repack more loosely. On the following day I remove the gauze but do not repack, but supply the patient with a syringe with which he irrigates the wound after each meal and at bed time with the same solution. He returns occasionally for examination until the wound is healed. After the packing is left off, if the cavity is very large, I fill with the soft Beck's paste, washing it out frequently and refilling. If all the diseased bone is removed asepsis is all that is generally needed.

I prefer a dull edged periostetome, rather than a sharp chisel, for elevating the periosteum as indicated by the essayist. Usually it is preferable to fill the root prior to the operation, however in those cases in which there is a serous discharge it may be difficult to sufficiently dry the root for filling prior to the operation. In such cases I fill the root after removing the dressing on the fourth day. I can then see the gutta percha as it emerges from the root apex and remove any redundant material.

Resection of the roots of teeth for cure of chronic alveolar abscess is more applicable to anterior than posterior teeth, though in some cases it may be advantageously employed for any of the teeth. If the labial plate of bone is destroyed to the gingival border then resection is not indicated and the teeth will be lost.

There can be no doubt but that many obscure pathological phenomena are due to absorption of poisons by the granulating surfaces of bone abscesses in the jaws. It is a duty every dentist owes to his patients, to look for all such conditions and remove them. Bone abscesses in other parts of the body are not thought lightly of, then why should abscesses in the alveolar process be considered inconsequential.

The essayist speaks of the carious process at the ends of roots as necrosis. If he will examine the same Adami's Pathology he quoted from, he will find that such a condition of bone as indicated is denominated caries.

I would ask the essayist in closing to tell us how he was able by the skiagraph to exclude antral involvement?

Dr. Frederick B. Moorehead:

I desire to pay tribute to Dr. Buckley for the splendid presentation of this subject. In the few minutes that are mine to use, I desire to discuss, seriatim, a few items in the paper. Dr. Buckley has spoken both from the standpoint of the therapeutist and the surgeon.

As to the therapeutics of this subject, and its chemistry, I shall have nothing to say, but I do desire to say something from the surgical standpoint: First, then, the question of diagnosis—When we speak about the question of diagnosis, what do we mean? We talk much about a knowledge of pathology and bacteriology. Well, that's trite—Such statements are mere platitudes. What is a knowledge of bacteriology? What is a knowledge of pathology? "A little learning is a dangerous thing"—mighty dangerous. There is no untruth so bad as a half truth. A half truth is the worst kind of a lie. Therefore, a little knowledge or learning is a dangerous thing. "They who know nothing, fear nothing." To repeat, what is a knowledge of pathology? We are always talking about it, especially when we come to a meeting of this kind. We say a man ought to have a knowledge of pathology; that he ought to have a knowledge of bacteriology. What constitutes such knowledge? Let me give you a bit of my own personal experience.

Ten years ago I thought I knew something about pathology. Tonight I do not think I know much about it, but I have been blazing away, "in season and out of season," by daylight and by lamplight, and I have reached the point where I am exceedingly humble on the question of pathology—exceedingly so. One of the greatest pathologists this country has ever produced was one of my best teachers, Dr. Ludwig Hektoen; a man prominent as a pathologist in this and other countries; a man whose name stands for real science; a man who is just as humble as a child. He is always careful in making statements about pathology. He is always guarded in his opinions.

I have, more than once, taken a specimen to Dr. Hektoen to get his opinion, and I have always found him exceedingly careful about his statements. And why? Because he has gone far into the science, and has a conception of its vastness.—The farther one gets beneath the surface, the more respectful, of his work, he becomes.—What constitutes a knowledge of pathology? What constitutes a knowledge of bacteriology? Who is a pathologist? Who is a bacteriologist? Who has a right to lay claim to a knowledge of either? One must start with the vast subject of biology, which comprehends all life.—It's too big for one lifetime to understand.—No man can know much about it.—No doubt in a hundred years from now, the knowledge and learning of which we boast, and feel proud, will be regarded by the scholars of that day, as inaccurate and small.

We ought to feel humble, and there is nothing that will make one feel so humble as a course of study, in the dead-house, of four or five years. It will make one profoundly humble. But, one is a diagnostician in proportion as he knows pathology, bacteriology and physiology.

What is diagnosis? It is a comprehension of all medical science. It is a composite term. It is made up of every element of medical science, and medical science is as big as the universe. There is no science that is not employed by the skilled modern physician, absolutely none. There is no calling on earth that presents such a challenge to the human intellect as modern medicine. So much for diagnosis.

Now, as to the question of crypotogenetic infection, or hematogenous infection, which is a better term. We have known for years and years about hematogenous infections, and in every modern textbook on medicine and in every modern textbook on surgery and pathology and allied subjects, we find illustration after illustration regarding the question of hematogenous infection. But this thing must be borne in mind, that while there are bacteria in abundance throughout the human body all the time, under all conditions of health, and of disease particularly, this much is true: these bacteria do not attack the tissue unless there is some disturbance of the normal physiological equilibrium. There is a normal physiological poise, a physiological balance, and so long as it is maintained we have nothing to fear.—When this is disturbed there may be a lighting up of some pathological process—some infection. For this there is always some underlying cause—some irritation. That word irritation is a comprehensive term. Therefore, the bacteria present in the tissues, with which the paper deals, are not to be feared, unless those tissues are in some way abused and thus lose their normal power of resistance—unless the balance between ease and disease, between health and pathological lesions, has been destroyed.

In the next place, let us consider briefly the question of acute infections. Acute infections depend upon two things: First, the virulency of the invading organism, and, second, the resistance of the tissues. These are the two things which determine what the infection is going to be from the standpoint of its influence on the organism. Briefly, what are the dangers of acute infections in connection with the teeth and alveolar process? The greatest danger is by extension. These acute infections may extend, into the maxillary sinus, nasal cavity—ethmoid cells, frontal sinus, and give rise to conditions which are far-reaching and serious. With reference to extension in the upper jaw, there comes to my mind the case of a negro woman who came to my clinic a short time ago, who had what was termed a simple dento-alveolar abscess, the infection occurring through a central incisor. The pus forced its way into the maxillary sinus through the anterior wall. The infection was caused by a virulent organism, and before very long the tissues were overwhelmed, and gave up the fight. The necrotic process extended to and involved the posterior wall of the maxillary sinus and extended to the ethmoidal cells. The pus collected in the tissues behind the orbit, producing an extreme, exophthalmos, with a suppurative process, a panophthalmitis, and later on it extended into the lateral sinus and terminated the patient's life from an acute meningitis. This is not a far-fetched picture. Such reports may not appeal to the general practitioner, but they do appeal to the man who has a large clinical experience. The average practitioner may not see many of these cases in his practice, but the specialist, seeing many of them in his own private practice and referred cases is always impressed with their gravity. The clinician must recognize the importance of the type of invasion. When such a case presents the first question to be settled is this: is the organism a virulent one? Or is it an attenuated organism? How much resistance has the patient? These are vital questions. The acute infection which gives the general practitioner the most concern is that occurring in connection with the so-called wisdom tooth, or lower third molar. It is one of the infections of the body which is to be feared. In this class of cases we often have infections without caries—the teeth being sound. The soft tissues over-lying the erupting tooth become macerated in the process of mastication, and infection occurs. Or, in the process of mastication particles of food and bacteria are forced between the crown of the tooth and the gum tissues on the distal surface. An irritation is set up, the bacteria gain entrance, and the subsequent history is well known. The danger in these cases is this: if you have an infection in which there is a virulent streptococcus mixed with staphylococcus, one producing toxines and the other pus, the pus forms under the periosteum, gravitates into the tissues around the angle of the jaw and collects beneath the cervical fascia. An oedema of the glottis may occur as a result of pressure within the tissues. The pus may even burrow down into the mediastinum, and when it does, death usually results. I have seen a number of such cases the past few years. I saw a case the other night where we had to do a low tracheotomy to prevent suffocation.

The second danger is due to pus collecting under the periosteum. An infection occurs through a root canal. It reaches the peri-apical tissues which rapidly break down. Pus is formed. It must go some place—it usually finds the easiest way out, following the line of least resistance. It finally burrows through the bone, and comes in contact with a dense unyielding periosteum. One of two things will happen. It will either penetrate the periosteum, or rapidly collect beneath it, tearing it loose from the bone.

The thing we must recognize when these acute cases come to us is this: Is the pus beneath, or has it penetrated the periosteum? And where a case presents with a large phlegmon, or an indurated, brawny mass which extends all over the side of the face, with ecchymosos, you can put it down every time that it is due to the fact that pus has collected under the periosteum; it has torn the periosteum loose from the bone. The intense pain in these cases is due to the pressure caused by the pus collecting beneath the periosteum. If the pus remains there for any appreciable length of time, the bone is in imminent danger of necrosis. The damage done will be in keeping with the extent of surface from which the periosteum has been torn loose. The bone dies from the effect of the pus, toxines, and the shutting off of the blood supply. In these cases of acute dentoalveolar abscess, we must determine at once whether the pus has gotten through the periosteum. If it has not, we must help it through as quickly as possible. If allowed to stand, the pus will eventually work its way through the periosteum, but the damage has already been done. I have three cases at present which illustrate the importance of recognition of acute infection of the pus type. One a little girl, thirteen years of age, who had what we might call a simple alveolar abscess of a lower central incisor, but the infection made a tremendous impression upon the child's whole organism. A tumor mass, a brawny swelling, such as we sometimes see, rapidly formed. The periosteum was torn loose from the jaw before the pus got through. There was extensive necrosis extending from first molar to first molar, all of the bone being lost. It is now in a bottle; it ought to be in the little patient's mouth. All because of a failure to recognize the fact that the case was a serious one. The pathology was not appreciated. I saw a case up in Wisconsin the other day, a man, sixty-nine years of age, who, a year and a half ago had an acute alveolar abscess of an upper central incisor. He was an old farmer, and it was my first experience of operating in a farm house. All of his neighbors were present—the experience was interesting. When the operation was finished we had removed almost completely his entire superior maxillary bones. Both maxillary sinuses were totally destroyed—the inferior turbinates hung down into the wound. The destructive process was most extensive. These cases are not so rare as one might suppose.

Just a few words about another class of cases which Dr. Buckley did not refer to, in his paper. In connection with the so-called chronic or sub-acute infections, we get this sort of a picture. The condition is simply this: we have an invasion here (indicating on the blackboard) through a cavity in the tooth. The infection travels up, and the first thing you know it has reached the periapical tissues. There is sufficient irritation to cause a stimulation of the fixed connective tissue cells, and wherever you irritate a part the omnipresent connective tissue cells will always begin to proliferate. This ability is inherent in every cell. If the connective tissue cells did not respond to stimulation, we would all be dead. Our bodies are saved from destruction by two things—the phagocytic action of leucocytes, and this ability of the fixed connective tissue cell to quickly manufacture new connective tissue, building a wall between the invader and the tissues. The stimulation of these fixed connective tissue cells in a little while results in the formation of connective tissue, the object of which is to wall off the pus. You sometimes extract a tooth and find a so-called pus sac on the root. This simply illustrates the fact that there was irritation produced at that point and around that point the fixed connective tissue cells were stimulated and began to proliferate, forming new connective tissues. Microscopically such a case would show a marked round cell infiltration.

It sometimes happens that epithelial cells, either from tooth buds, or a so-called matrix of epithelial cells, are included in this sac of connective tissue. What happens then? That epithelial cell begins to divide and other cells are formed—the whole of the interior of the sac may become lined with them. What do they do? They secrete, and we have a definite cyst. It contains so-called laudable or sterile pus, and after a while this is absorbed. You open into such a tooth and treat it and it keeps on weeping and weeping, just like your mother-in-law will do when you are dead. (Laughter.) It won't heal, because up in here (indicating) there is a virile epithelial cell, and one of the most virile things in the world is an epitheial cell. The tooth keeps on weeping and weeping and weeping, from the root canal. It does not get well. Finally you have an X-ray picture made, and it shows simply a large bone cavity around the apex of the affected tooth—the cyst, of course, is not seen. You then decide to do the kind of an operation Dr. Buckley has described, and you may fail to remove all of the cyst membrane. In that event the case does not clear up, and won't, until all of the membrane has been destroyed. The recognition of the cyst, both from the character of the secretion, and appearance of the membrane, is simply an element in diagnosis.

Another thing which Dr. Buckley forgot to mention, because he could not cover everything in his paper, but which Dr. Gilmer hinted at, although he did not say it exactly as I wanted him to. He knows it as well as any man living. It is this: never attempt to amputate the apex of a root unless that root is completely covered by a healthy peri-dental membrane. If you do your case will fail. To illustrate: suppose we have here (illustrating on blackboard) an alveolar abscess, and upon examination we find the root is devoid, in some places, of peri-dental membrane, perhaps from the so-called cervical margin clear to the apex on one surface. In such a case, it is a waste of time to amputate the root. The tooth may be as solid as any of its neighbors, and yet a portion of the peridental membrane may be entirely destroyed. Do not try to save teeth unless they are solid and unless they have a vital membrane to fall back upon, because you will fail ignominously, and an ignominous failure is the worst kind of a failure.

Just a few words about atypical cases, and I mention these briefly in connection with a word or two about X-ray pictures. An X-ray picture, is taken, usually, from the labio-lingual aspect. Suppose I draw an outline of a root from the other aspect (illustrating), from the mesio-distal aspect. This root may be rough and excoriated like that (indicating). It sometimes is excoriated, and an X-ray taken from this diameter does not show the condition at all. You may think you have a fine root to deal with, but instead you have a root partially destroyed on the apico-lingual surface, if I may use that term.

Another atypical form is where we sometimes have a collection of so-called serumal tarter on the root near the apex, a hematogenous infection occurs, a fistula is formed. There is a loss of bone tissue around the apex. It may be a pulpless tooth, and the root canal has been previously filled. The X-rays show a perfect root canal filling. You have a large pocket in here (illustrating) and you operate, do a nice curettage, amputate the apex, possibly, and introduce Beck's paste, and it does not heal because the offender is still there, and it does not show in your X-ray picture. There are a multitude of these little things that contribute to defeat your purpose, and unless they are recognized, failure results. The virtue of the specialist, after all, is that he learns so many little points, and if he does not know these, he is no better than the fellow who is doing routine work.

I desire, in closing, to go back to my starting point, and reemphasize the importance of diagnosis in the fullest meaning of the term. There are many other phases of the subject which I would enjoy discussing if the time would permit, but the hour is prohibitive.

Dr. William H. G. Logan:

I want to compliment the essayist on his excellent paper and to say that I agree practically with everything he has said, especially in reference to the treatment of root canals. If you put your remedies in there, and then see to it that you keep other things out, I think you will get along firse rate. But if you put remedies in root canals and let other things in with them, the remedies will not do much good.

In reference to opening into the exposed root end, I sometimes like to make an incision that is as large and circular in form as is the opening through the bone, not always, but sometimes, and then pack it for the day and let the patient go home. Then, when the patient comes back, I take my pack out, and I can see many things that I could not see before, and cut off the root where it seems to be the place to cut it off, and use as Dr. Gilmer did, something that will not destroy the cells, most often I employ salt solutions that heal, and that is all, and let the patient use that at home. That with me has been a better way than to leave tissue overlying the opening in the bone. Very often such cases as these are best treated by removing all of the overlying soft tissues, and letting them granulate from the bottom, rather than allowing the tissues to fold over our opening as the essayist described. If the opening in the bone is small, you can carry the tissue back and curette and leave the healthy tissue there. In a case where you cut away all tissue to get at the involved part, and in practically all extensive cases this should be done. I anesthetize and incise through the soft tissue and pack it, and when you take out the packing tomorrow or twelve hours later, you have the field pretty well exposed without hemorrhage. There are not so many cases that really need this form of treatment—yet there are a few, and you must be careful, as Dr. Moorehead has said, that there is no track running from the apex down the side of the root, if you expect the case to get well. A good many dentists for years have used aromatic sulphuric acid and had good results from it. I simply do not use it. I would not condemn it in all cases. However, I prefer some remedy which I regard as more reliable after I have done the curetting. I feel in many of these cases, if you will just open through to the apex of tooth and put a pack in, let the patient come back twenty-four hours, you will give the line of treatment indicated better than if you undertake to take it out at the time when there may be considerable hemorrhage, especially is this true, provided you are not in the habit of operating in these fields.

DR. ARTHUR D. BLACK:

I want to discuss this paper briefly from the therapeutic side;

not that I consider myself able to discuss the matter of therapeutics with Dr. Buckley, because I have not made the study of the subject that he has, but I desire to call attention to the tendency in general surgery in the matter of irrigations and dressings where we are placing antiseptic drugs in connection with tissue. Most of our best surgeons are not following the same lines today that they did two or three years ago. Surgery has passed from what we might term the antiseptic period to the aseptic period. Lord Lister first discovered forty odd years ago that surgical operations could be performed in an atmosphere of phenol spray; that wounds did not suppurate and he did so with the idea that all of the germs present in the room or in that neighborhood could be destroyed by a strong antiseptic solution, and that idea was carried out in surgery up to within recent years, and during that period the more severe the infection with which a physician or surgeon had to deal, the stronger was the antiseptic solution used. That has practically passed now in modern surgery.

A very interesting paper was read before the Western Surgical Association in St. Louis in December by a man whose name I do not recall, who had conducted a series of experiments with antiseptics relative to their effect on the tissues. Without going into details, I may state that he came to the conclusion, which is agreed to by practically every prominent surgeon today, that antiseptics in wounds, as a general proposition, do more harm than good, for the reason that if the antiseptic solution is strong enough to destroy bacteria, it has such an inhibitory effect on the normal growth of tissue that the wound will not heal so quickly as if no antiseptic is used, and for this reason most general surgeons have for a considerable length of time been using nothing more than sterile water or physiological salt solution in irrigating wounds. The theory is that the bulk of infection is washed away mechanically, and when this is done nature will be in a better position to take care of the wound, so far as healing is concerned, than if an antiseptic is used.

I know of one case, a cousin of mine, who had a gunshot wound of the arm. The wound was sustained a good many years ago. That arm was kept in a phenol solution of various strengths for something over three weeks. There was no suppuration whatever, but there was absolutely no tendency toward healing, and after the solution was dispensed with it was three weeks more before there was hardly a sign of granulation tissue. The phenol solution had so injured the tissue of that arm that it took three weeks to recover from its effect before the wound began to heal. There are many places in the practice of dentistry, and especially in the surgical side, with which this paper largely dealt tonight, that we cannot do better than to follow the experience of general surgeons, and to my mind it would not be right to use, following these operations, any solution that would be irritating to the tissues, but we should use instead sterile water or normal salt solution. I could cite you any number of general surgeons who use, after abdominal operations, appendicitis cases, etc., in which there is much pus present, nothing more than physiological salt solution in the irrigation, and nothing in the way of medication in connection with the packing of these wounds, and the conclusion of all seems to be that the wounds heal more rapidly.

If I should discuss any other phase of the paper it would be to emphasize what Dr. Buckley has said regarding the importance of proper diagnosis. It is a fact that in many cases of chronic alveolar abscess a proper diagnosis is not made, or it is not made until after a long series of treatments, as mentioned by the author of the paper. We see many cases in oral surgery, particularly in our clinics, of chronic alveolar abscess in which some method of treatment has been employed, some particular medication, for some time, and the case did not get better, and then something else was tried, and something else, until finally the operator has given up in despair and sent the patient elsewhere. When a case of chronic alveolar abscess presents itself, the first thing to know is how much of the peridental membrane has been destroyed. You want to know what the condition is outside of the end of the root. We can usually find out what we want to know with a sharp steel probe. We often have X-ray pictures made and subject our patients to an additional expense when it is unnecessary. In saying this, do not understand me to depreciate the value of the X-ray, because it is absolutely necessary to a proper diagnosis of some cases, but there are many cases in which it is absolutely unnecessary, and we can make a diagnosis without it just as well with it. I certainly believe that we can make a proper diagnosis in a fair percentage of cases with a sharp steel probe alone. The first thing anyone of us should do when we have a chronic alveolar abscess is to explore the sinus, if one is present, and find out with a sharp steel probe the condition at the other end, and it is easy with such a probe to determine what is at the other end of the sinus, whether it be necrosis of bone, carious bone, a denuded root end, or whatever the condition may be, and I believe if each one of us would do that one thing, make it a practice to explore each one of these sinuses with a sharp steel probe before we do anything to the tooth through the pulp chamber, there would be much less treatment of teeth that have chronic abscesses, and also a great reduction in the number of these abscesses.

Dr. C. P. Pruyn:

I want to pay tribute to this admirable paper read tonight by Dr. Buckley. I want also to do justice to the man who brought this subject before us many, many years ago—Magitot, of Paris, who resorted to this method of amputation away back in the sixties, and described his method, although his name was not mentioned this evening by the essayist. I think attention should be called to the work of Magitot, which was done many, many years ago, and before some of us were born.

When it comes to raising of the periosteum so delicately, and expecting that the periosteum will go back to place nicely and perfectly, it is a phantasy of the mind; it does not do so in the mouth. We may raise the periosteum when we are treating an arm or a leg, but when we raise the periosteum in the human mouth it does not go back to place nicely. My method is to make a crucial incision, first, through the soft tissues, then make a good circular incision, make a hole or opening as large as the interior, and remove all deposits, curette perfectly, treat with aristol, as I would not use iodoform in the mouth. It stinks too much. Aristol, which is practically the same preparation, can be used, and it works nicely. Aristol, while it costs more money, will do the work just as well, and the amount we use does not cut much figure when it comes to the expense. Therefore, I would eliminate iodoform from use in the mouth.

In the treatment of this subject tonight we have had a rare treat, both by the author of the paper, and by those gentlemen who have preceded me. The subject has been discussed in a very intelligent manner, and I want again to pay tribute to the admirable paper given us by Dr. Buckley.

Dr. Hart J. Goslee:

I am given to be somewhat negligent at times, and yet I do not know that I ever shirk a duty, and I feel upon this particular occasion that I would be derelict in my duty if I did not pay tribute to the splendid essay presented by Dr. Buckley. I feel I would be derelict in my duty, because being close to him in an office on the West Side, I was among the first in Chicago to practice the use, and to put into application the theories of Dr. Buckley, and I want to say to you in the presence of Dr. Buckley that my success has been nothing short of phenomenal.

Dr. Gilmer has referred to the persistency with which Dr. Buckley has hammered away at this thing. He deserves the greatest commendation for so doing, and I am gratified to know that he still keeps on hammering away at it because it seems to me very necessary in order to influence other practitioners in the right direction.

I want also to pay tribute to the splendid discussion of my friend Dr. Moorehead. I have known him for about fourteen years, but I believe I never knew him until tonight, and on behalf of the Program Committee, I want to thank the essayist and those who have participated in this discussion for this splendid evening's entertainment.

Dr. G. W. Dittmar:

There seems to have been a little misapprehension on the part of some of the speakers this evening as to some few things in connection with this subject. It was Dr. Pruyn who started the ball rolling. I want first, however, to second every word Dr. Pruyn has said, as well as Dr. Goslee as regards Dr. Buckley. The paper was certainly an excellent one, and the discussions were good. I have great admiration for my friend, Dr. Buckley. I have known him for a number of years, and I admire his persistency in hammering away at a thing in order to get results.

I remember seven or eight years ago, when Dr. Buckley was professor of materia medica and therapeutics in the college of dentistry, University of Illinois, his teaching and mode of procedure were radically different from what they now are, and I cannot help but marvel at the wonderful steps he has taken since that time and what we now have comparatively in his work. I want, however, to give credit not only to Dr. Buckley but also to some other men, one of whom he was associated with at that time, and who I have the pleasure of being associated with in other work: those men are Dr. Elgin MaWhinney and Dr. George W. Cook. I think Dr. Buckley gave Dr. Cook some credit in his paper. By way of parenthesis, there is one other man whose name should be mentioned in connection with much valuable work along the line of materia medica and therapeutics leading up to this, and that is Dr. A. H. Peck; but Dr. Cook and Dr. MaWhinney did much work on the tricresol preparation, and a great many other antiseptics during the winter of, I think it was 1899, and I had the pleasure evening after evening of being with these men while their work extended over weeks and months. Finally, that spring Dr. MaWhinney read a paper before the Illinios State Dental Society on the findings of their work. After Dr. Buckley became associated with Dr. Cook he took up a different line from what he had been teaching, which has resulted in this, and for these results he is deserving of great credit, but I do want some credit given to those men who were pioneers along this line and whose work has finally culminated through the continuation of Dr. Buckley's labors in what we now have.

Dr. Buckley (closing the discussion):

I will just run through my notes hurriedly, and will not detain you long. Dr. Stoeckley in his discussion gave me credit for having originated the preparation of phenolsulphonic acid, and to help relieve Dr. Dittmar's conscience, who made a comparison, I will say that the preparation, so far as I am able to determine, which was introduced by Dr. Cook, consisted of a mixture of crude sulphuric acid and crude phenol, and it looked to me more like an oil suitable for the transmission of an automobile, and I would not think of putting it in a tooth, and I never did use that crude phenolsulphonic acid made in that way. I emphasized in my paper purposely the new phenolsulphonic acid. It is not mine, neither is it Dr. Cook's. If you will look in the Dispensatory of 1890, the commentary of the United States Pharmacopeia, of that decade, you will find it is not mine at all. It belongs to whoever introduced it to the Pharmacopeia. I have added some finishing touches to the formula to enhance its dental value. I do not want to receive credit for anything I am not entitled to. The thymol iodid ointment mentioned by Dr. Stoeckley I did not refer to in my paper tonight. The formula is mine and I use it as a substitute for bismuth paste. I am glad Dr. Pruyn mentioned the value of europhen and thymol iodid, or its proprietary name aristol, because we can get good results with them. Dr. Gilmer, I know, believes we cannot get the liberation of the iodin as rapidly from these synthetic substitutes as we can from iodoform, but in my experience they have given good results. The reason I did not mention the ointment of thymol iodid, as referred to by Dr. Stoeckley, was because it is expensive, and I was afraid when you put it into a metal syringe it would rust the syringe. But Dr. Conzett was in my office today, to whom I gave some time ago the same kind I gave to Dr. Stoeckley four months ago, and he has been using it in a metal syringe ever since. He does not think it has rusted the syringe. (Dr. Conzett has since informed me that it does not rust the syringe.)

Dr. Gilmer wanted to know how I could diagnose antral disease from the radiograph shown. The radiograph or skiagraph in that instance showed that the antrum was not involved. I presumed from the skiagraph, Dr. Gilmer, that the antrum was not involved, because I found the canal of the cuspid was not filled, and the carious bone around the first bicuspid was not extensive. It did not seem to go so far as to involve the antrum, and by subsequent treatment my presumption was found to be correct.

I want to emphasize the value of the use of the steel probe, which I learned from Dr. Black when I saw him operate about three or four years ago. Ever since that time I have been using it, and I recognize its value. From the knowledge one gets from the end of the fingers, he can tell dead from living bone. But I do not believe you can accomplish the things Dr. Black would lead you to believe can be accomplished by the use of the steel probe over the skiagraph, because I want to know whether or not the root is properly filled. In a great many instances I can determine the area involved by means of the steel probe, and I know whether surgery is indicated or not, and whether the tooth carries a good porcelain crown; but I do not know whether it is necessary to take off the crown, which I do not want to do, because I would have to destroy the crown, if the root was thoroughly filled. So the skiagraph is a means of making it easier for you. You can cure a case oftentimes without the necessity of removing the crown and destroying it where you might be working blindly if you did not have a skiagraph, and it is well worth three dollars, if I think I need it. If it is a case that I have treated myself I know whether or not the root is filled, and there I do not need a skiagraph.

The character of the discharge, as brought out by Dr. Gilmer, is a very important point, and as Dr. Moorehead has said, I did not have time to take up all the details that enter into this subject. As to the filling of the root, where you cannot get the root dry, I would like to fill the root before I operate. I would probably not do it if we had a weeping condition which has been referred to by Dr. Gilmer and Dr. Moorehead. I like to fill the root previous to the operation, because it is difficult to properly fill the usually large apical opening after excision. The reason I mentioned this point is because Dr. Schamberg of New York, emphasizes that he likes to have the root canal open and fill it subsequently.

I have admired Dr. Moorehead all these years. I used to be located with him in the same building, and occasionally I would go down to his office and I would find his reception room open, but his private room locked. In those days he could not afford an assistant, and I could see that he was out. I knew where he was. He was either over to Rush Medical College or else he was down working in the laboratory of the Chicago University, studying these problems and those things which he has so well emphasized here tonight. We all admire a man who will leave his office when he can illy afford to do so and go to a laboratory and dig out knowledge. He dug and dug, and got the degree of M. D., under the handicap in which he was placed. I admire such a man.

I presume I made a mistake in saying that I was going to detail my method tonight. I have never made a bid for credit. I spoke of my method because in certain respects it is mine. The use of some of these instruments is mine. I differ from Dr. Brophy (and Dr. Logan has referred to it) as well as Dr. Pruyn. Dr. Brophy advocates cutting the whole soft tissue away over area involved. I differ in this respect, yet I do not want to set myself up against these men, but I know I get results in my own practice. I find cases will heal rapidly after the method of treatment I have described without waiting six months for the tissue to granulate and fill that large space that was caused by the destruction of so much seemingly, to me, unnecessary, soft tissue.

In regard to the pus pockets, the sort of pyorrheal pockets referred to by Dr. Moorehead, if he will read my paper, he will find that I distinctly stated "especially is surgery indicated in this latter class of cases, that is, where the root is filled and has carried an artificial crown, or has a good natural crown, if the affected tooth is firm in the jaw." The teeth he referred to will not be firm in the jaw. You must have the pericemental membrane attached all around the root; you must cut down to healthy bone on either side, and it does not make any difference whether you leave the root end slanting or flat. I remember Dr. Harlan used to cut the root slanting, and for a number of years I thought it was necessary to make a slanting cut. If you get down to healthy bone on either side the case will heal; however, you leave the root as long as it is smooth.

Perhaps I was misunderstood by Dr. Black because I suggested cauterizing the curetted area with phenolsulphonic acid. He probably thought I used strong antiseptic solutions. I may have been misunderstood because I suggested cauterizing the area with fifty per cent phenolsulphonic acid after the curettment. I do that because I want a bone cell stimulant, and I know of nothing that will stimulate bone cells to healthy activity better than phenolsulphonic acid. I do not use a strong antiseptic solution. In this connection I said: "With the end of the root smooth and cut down to healthy process on either side, the area thoroughly curetted, the wound should now be washed with a *warm antiseptic solution*." If I say a warm antiseptic solution, I do not mean phenolsulphonic acid. I do not know of anything better thaa a warm antiseptic solution for this purpose. Normal salt solution is excellent. Whatever is used, I want it warm and mild, and I want it antiseptic.

Dr. Black has referred to a paper by a Missouri gentleman on antiseptics, and in answer to this I will say that we have known for years that we could not kill germs by the use of strong disinfectant solutions when the home of the germ or germs was among living healthy cells, animal cells. We have known for years that we could kill the germ in a test tube with bichlorid of mercury and other solutions like cresol, formalin, etc. But that is no criterion why we should try to kill the germ by using the same solutions when the germ is among living animal cells. The animal cell and the vegetable cell are too nearly alike. We know that the cell-wall of the animal cell is more readily penetrated by the solution than is the cell-wall of the bacteria, and so it is foolish on our part to attempt to kill the germ or germs by the use of strong antiseptic solutions. The only thing we can expect a drug to do is to simply aid nature in her effort to overcome the pathologic condition. No one should expect a drug to do more than that, because if he does he expects something that a drug or remedy will not do.

I do not know what I ought to say with reference to the statement of Dr. Dittmar. If he meant to infer that my association with Dr. Cook and Dr. MaWhinney had anything to do with my suggesting formocresol, he is wrong. I know that Dr. Cook and Dr. MaWhinney have both said—and I have never said this before—that they used a mixture of formalin and tricresol previous to my introducing it, but if they did, they never put it in writing. Dr. MaWhinney never referred to it in his book or in the paper he read before the Illinois State Dental Society in 1899 or in 1900. Dr. Cook and Dr. MaWhinney are too big to use a thing and get results with it and not give it to the profession. If they used it years ago, as they said they did, or as Dr. Cook said they did, and then did not get results and threw it away, then they are not entitled to credit for that. If Dr. Cook used it and failed and somebody else used it and succeeded, and you can succeed with it, then I say he is not entitled to the credit, and I want to say here in as strong language as I can make it, because I consider you my friends, that I never read or heard by word of mouth anything from either Dr. Cook or Dr. MaWhinney or from any other source that indicated that the mixture of formalin and cresol had been used—previous to my paper at St. Louis in 1903. I know both of them used tricresol alone and they are entitled to the credit due for introducing this agent, so far as I know. I have heard Dr. Cook say that the man who introduced ox para to the profession got the formula from him, and I have heard that Dr. Cook said also about two months ago up in Milwaukee that I got the phenolsulphonic acid formula from him. If he made that statement, he is mistaken and, I hope he didn't say it. When I say phenolsulphonic acid I do not mean Dr. Cook's mixture. I mean that which I got from the commentary on the United States Pharmacopeia, and which I perfected to make it more applicable to dental practice.

I would not have said this, ladies and gentlemen, if it had not been for the statement of Dr. Dittmar. I do not know whether I took him wrong or whether he meant to say what I have referred to. If he did not say it, he inferred it strongly. However, in reply, I have said that which I know to be a true statement of facts. I thank you. (Applause.)

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held March 7, 1911, with the President, Dr. C. N. Johnson, in the chair.

Dr. George W. Cook read a paper entitled "Some Experiments on Treating and Filling Pulp Canals."

DISCUSSION.

Dr. J. G. Reid:

The essayist has written a paper that from a practical standpoint coincides with my views. I am not advertising anybody's preparations at all, when I speak as I do, because the essayist recommends very highly in this paper Cochran's preparation for filling root canals, and according to his own tests and experiments he finds it a very valuable and useful adjunct in the filling of root canals. What I may have to say in that particular is along the line of clinical experience rather than along the line of scientific chemical analysis, and the conclusions at which I have arrived have been to me most satisfactory in the use of this preparation. Dr. Cochran, I think, gave his prescription in full to Dr. Roach a few years ago, and I should say it must be four or five years at least, as near as I remember. Since the introduction of his preparation, I do not think I have ever filled a root canal that I have not used Cochran's prescription. One thing I find, however, is that it requires a considerable amount of patience to use it. The oil of eucalyptus is slippery, and I have tried it with cones and with plastic gutta percha and chloroform, and I have in the later years of my practice abandoned the use of cones unless I use them in connection with white gutta percha. I do not use the red gutta percha points with it, but if I use red gutta percha I use it with a solution in chloroform in a plastic state and allow the chloroform to evaporate from it. It is a nasty thing to fill a root canal with it and make it hold until it is apparently dry. It is more of a lubricant than it is anything else as a root canal filling. It is not a preparation that is valuable as a root filling alone, it is worthless, but as a lubricating agent I believe it to be a very useful and a valuable adjunct in the filling of root canals. It seems to me that I have had less trouble since I have used this preparation than with any other.

Dr. F. E. Roach:

I cannot, I assure you, add anything to Dr. Cook's paper from a scientific standpoint, and all I shall have to say will be with reference to the mechanical feature of the root canal filling.

Dr. Cook goes into the subject very thoroughly and has given us an explanation of the progress of the bacteria and the methods he has shown of determining the germicidal properties of these various preparations are exceedingly interesting, and we know the work he does in that direction is carefully done. But, as I say, the part of the paper which particularly interested me and which I would like to discuss is with reference to the preparation of Cochran's for filling root canals. When Dr. Cochran gave me this formula it appealed to me when he explained to me the contents, from the fact that the preparation itself was very superior to the gutta percha or chloropercha, in that it did not change its form when placed in a root canal; that is, it was free from the evaporation of the chloroform. The chloroform was evaporated from it, and it stays where it is put without any shrinkage. That appealed to me from a mechanical point of view strongly and by reason of the eucalyptol being contained in there. This antiseptic remains as long as it is in the preparation, and that is the convenience of it. It is always ready, you can leave the bottle open if you want to, and it is always in that sort of putty-like consistency. My method of using it is this: After I clean out the canals, and get them free, I place a small pellet into the opening of the canal, and have it brought up to the necessary softness by the application of hot air, or to a state of liquefaction by a blast of hot air, and then with a smooth broach pump it into the canal, and follow with the gutta percha cones as a means of filling the canal, and my experience with this material has been exceedingly satisfactory, and I have recommended it and spoken of it to a great many dentists. It is gratifying to know that Dr. Cook has made these tests, and that it has proven under these tests as satisfacory as it has, because of my experience with it practically.

Dr. C. N. Johnson:

I have enjoyed this paper very much, because, as other speakers have said, it has given scientific endorsement of the practical experience some of us have had.

There has been a mistake in regard to the presentations of Dr. Cochran's preparation. The essayist made a mistake when he spoke of the preparation itself. He stated that it was the oil of eucalyptus; it is not that at all, because the oil of eucalyptus is a severe irritant.

It is eucalyptol. The solution is made of base plate gutta percha in chloroform, and a saturated solution of thymol crystals in eucalyptol is made, and as the chloroform evaporates the eucalyptol and the thymol are added to it until you get the consistency you wish. I know whereof I speak, because I published it from the pen of Dr. Cochran in the DENTAL REVIEW the first time it came out. My method of using it is different from that of Dr. Roach: I place a pellet of it in the pulp chamber, and instead of using hot air I take a hot small-pointed instrument and touch the mass with it. The virtue of the material is that it will flow every place. It will seek out the smallest canals and the smallest interstices in any canal, and a point that Dr. Cochran mentioned to me when he first told me about the material was that his experiments showed that the thymol was found to be active in the canals even after years.

I am very glad indeed that the essayist brought this matter up tonight, because I do not believe the profession is getting the greatest benefits they should from this preparation, because it is not widely enough known. It is true, it has been published extensively, yet the profession has been slow to take it up.

DR. J. E. HINKINS:

This is an interesting subject to us all. I do not know exactly whether it was Cochran or somebody else who first brought out this preparation, but along about this time Dr. Campbell and I made a preparation in the office with gutta percha and chloroform, and after the chloroform had evaporated I added eucalyptol to it with thymol. It seems to me, the first man I heard to adopt it was Campbell. We have different ways in getting at the same results.

When I first started to use it I had the soreness which Dr. Johnson said the gentleman in the East had had, and after looking over the ingredients I found I employed eucalyptus instead of eucalyptol. While I was plodding around in the dark for the best results through the aid of Dr. Cook I ran across a formula which I use a great deal more than any other one preparation I have employed in the office for treating the class of cases under consideration, which is tricresol, one part, oil of cloves, one part, and alcohol, one part, and I used that as a dressing. After I used that with a preparation of eucalyptol the patient did not have so much soreness of the roots, but since I have been using eucalyptol instead of eucalyptus, it has been very satisfactory. When I apply it to the pulp chamber my method is a little different from that of Dr. Roach or Dr. Johnson. The method I have followed is something like this: I take out a drop or two of the solution and place into the pulp chamber. Take a fine broach dipped in eucalyptol and work the preparation into the canal, and the preparation seems to reach every place.

As to the chemistry of the subject, I have observed that in using chloro-percha there was some deficiency and it failed. There was dehydration or some hydrolytic action there or something that produced a space or formed a vacuum so that we did not get the best results. But it never occurred to me until Dr. Cook read this paper that probably there was the presence of chlorin from the chloroform left in the solution of chloro-percha which is held there and renders a certain germicidal action that we do not know anything about. That is undoubtedly true, and I am glad Dr. Cook brought that point out, because there is something about this preparation that gives us results which we do not get without it. I question very much in my own mind whether after a long time there is any germicidal property in the thymol or not. I am more inclined to believe that it is the catalyzing action of the chloroform on the eucalyptol that leaves the chlorin in a nascent state in the chloropercha from which we derive the greatest germicidal properties. In the early part of my practice I filled some root canals with oxychlorid of zinc, and it fell to my lot oftentimes to fill such canals for patients who were troubled considerably with pyorrhea. We did not have so many pyorrheal cases then as we do now. In those cases of pyorrhea in which I filled the roots with oxychlorid of zinc I found decided absorption has taken place, especially on the ends of the roots, and the oxychlorid of zinc has always absorbed farther than the root of the tooth has. I have removed a few since I have been using this preparation of Dr. Cochran's and in those cases it seems to have been put there very firmly and is doing good work up to the present time. Whether it is the action of the chlorin or what it is, we do not exactly know, but it seems that this is the best preparation we have at the present time. I have filled pulp canals with sandarac varnish, but in looking over my records, the other day I found that out of thirty teeth I had filled with sandarac varnish I had removed twenty-nine, so I have discarded sandarac varnish. This preparation of Dr. Cochran's seems to be the most satisfactory thing for root canal filling I have used.

Dr. E. A. Royce:

It is unfortunate we are not all chemists so that we can discuss this paper intelligently. Some of us have to rely upon the investigations of others to show us the true value of different methods of treatment and this evening has given us a rare opportunity to gain such knowledge.

I have been using a preparation similar to Dr. Cochran's as a lubricant for my gutta percha—using hydronapthal as an antiseptic. I also incorporate a good percentage of hydronapthal in the cones. and where I have done this, I have found the root canals remained more nearly aseptic than where only gutta percha was used.

Dr. P. J. Kester:

This matter of root filling is one that has interested me since the time I began the practice of dentistry.

As to the introduction of eucalyptol, I am not here to rob Dr. Cochran of any glory in the matter, but I know that I used for years a solution of gutta percha in eucalyptol, but the introduction of the thymol is another thing. But the underlying thought of this thymol and the hydronapthol and the incorporation of formalin with oxid of zinc, or the various oxides, is to induce what I call a persistent antiseptic, that is, something very much like the action of iodoform. The secretion decomposes the iodoform and liberates iodin in small amounts, and in that way the wound is disinfected continuously. It seems to me, the underlying principle of all those things is the same.

I have not heard a paper for many years which has pleased me so much as Dr. Cook's paper has, inasmuch as he has shown things. He has demonstrated here a definite action which occurs in certain root canals, and has explained it, so that there cannot be any doubt as to the results. The whole matter is summed up in his last statement, that it does not matter so much what sort of antiseptics or root fillings we put in there, provided we render the root aseptic and hermetically seal it. I think this paper will do a lot of good, and it has been a great pleasure to me to have listened to it.

Dr. L. L. Davis:

I wish to pass around one or two skiagraphs which seem to me pertinent to this subject simply because they emphasize the sum total of the paper. No matter what you fill these root canals with, so long as you render them antiseptic and fill them, they are pretty near all right. One of these cases was presented to me within the last few days. I know the dentist who had charge of the case beforehand, and I may say that he is probably one of the most learned and scientific in Chicago. You will see plainly that none of the roots were filled, not even the anterior root, even though you can see from the top of the crown that there is a large opening because the coronal portion was decayed. It was a first molar and probably defective when it came through. The enamel eroded from the coronal surface and the entire surface of the tooth had undergone decay, as you can see from the picture. The patient was a young lady, nineteen years of age, and that dentist has been trying to save that tooth for several years; the tooth has been sore, and the last time he closed it up he said, "You are probably going to lose this tooth in a little while, but we will keep it as long as we can." When she came to me I did not know what to do with it, but I sent her over and had a skiagraph taken. The line of the root filling comes out just below the bifurcation, while the real line of the root canal is directly in line with the axis of the tooth, and it was by changing direction of the broach and by introducing a very fine-pointed instrument we were able to clean the canal readily. What I have said is only in the way of emphasis concerning the summing up of the work of the essayist, but talking to the subject of the paper, I want to say that Dr. Cook has given us a very masterly talk on the scientific side of root filling, and he has proven by his experiments that certain things obtain when we do not think they do, and even under the best circumstances infection occurs in the bouillon after a certain period. If this dressing of gutta percha with eucalyptol and thymol is going to help us out, I am going to use it. I have not used it because for years I have been following the old-fashioned method of carrying out a suggestion that Dr. Harlan gave us when he first introduced eucalyptol to the profession, using Sanders' eucalyptol. At that time he advocated thoroughly dehydrating the root canals, the moistening of these root canal cavities with Sanders' eucalyptol, and then applying the gutta percha root filling. It is a method I have always employed since that time, and I for one have never yet seen the time when it was necessary in order to save a tooth for me to seal any medicine as a permanent root filling. I have heard dentists speak about these different mummifyers and such like, but I have very little or no confidence in them. I think the less we have to do with medicines as a permanent factor in obtaining good results, the better dentists we will make.

Dr. Elliott R. Carpenter:

Dr. Cook's paper has been an inspiration to us all. We all have our little hobbies, and we all have our ideas and technic, and we all gain results by technic only. I say advisedly technic only because this paper has not been discussed scientifically by any one of the previous speakers. Upon future reading and study we all will undoubtedly gain an incentive to go into the scientific chemical side of this subject which undoubtedly few of us have from this discussion. I myself refused to open the discussion from a scientific chemical point of view, because I knew nothing about that phase of the subject, but I have gained from my older confreres the basis of a line of technic that has fortunately been a successful guide for results along this line, for which I am truly grateful, and I have come to this line of thought: with all due respect to the author of the paper and other great scientific men, first of all, in dealing with things as minute as root canals we have got to begin with minutiae. We have got to begin with technic, and we have got to follow it to a finish, and if that finish should take one hour, we should take that time, and not fifteen minutes. I will not attempt to discuss the paper from a scientific point of view, but I will, if the Chair will permit, enter upon a few practical technical points.

We all know that root canals have been successfully filled with thread, silk floss, impregnated with creosote, and they have been filled so successfully as to have stood for twenty and even thirty years. We know they have been filled with gold foil and have stood the same length of time, and there is a reason, and that reason is technic, unwavering, unfaltering technic. There is an intelligence in technic that calls for basic principles, and these basic principles you have got to take up from the bottom, and the bottom means opening or an entrance into the canals, and I am perfectly convinced from a number of skiagrams it has been my pleasure to see in the last few years, that at least twenty-five per cent of root canals are never opened at their entrance. There is constriction at the entrance of nearly all dental canals from the pulp chamber and these have got to be opened first. There is a definite measurement as to the length of canals and in the majority of cases it means two thirds of the length of the root and the crown, equals the length of the roots. There is no excuse for the filling of a root canal one-eighth of its length. Your broach will tell you the story.

As to the fineness of the technic, and it should be the finest, the finest broach is not too fine, and it means a well tempered broach, and it means a soft broach, and it means a square broach, and it means a round broach, and a hook broach, as instruments for your technic. Since I left dental college I have not been guilty of using a barbed broach. It has been a most barbarous thing to have put in the hands of the dental profession. It is a source of infection, and it is unnecessary. With a jewelers square reamer of the finest gauge and a Donaldson hooked broach, also one with the hook cut off and the end squared on a stone, the broach held in pliers and run across a fine finishing stone, you have an equipment for your work. The root canal should be opened at its constricted point as it leaves the pulp chamber, with your hook broach and with your reamer, armed with fine whisps of cotton, twisted on to it, you can pick out the pulp by twisting. With your hook broach you can follow it up and pick out small pieces that are adherent to the root canal, and with your root canals thoroughly cleaned, which means time as a part of your technic, with your smooth round broach, the point armed with a bit of wax and wiping a whisp of cotton on to that, you carry the medicines and leave them at the apical ends of the root canals. This is all the armamentarium you need, and the whole situation of root canal filling is one of technic, and a paper could be written on that subject. I have simply gone into the practical side of this subject because I am not capable of discussing the scientific side of it.

Dr. C. N. Johnson:

I would like to ask Dr. Cook a question, inasmuch as he spoke of the different sealing agents, as to whether he has experimented with gutta percha in the apical end of the root covered with oxychlorid of zinc in the larger portion of the canal? The reason I ask that question is that in 1903 Dr. Webster, of Toronto, read a paper here before the Odontographic Society at its fifteenth anniversary in which he said he had performed a series of experiments as to the best possible barriers to bacteria, and in that paper he said he found oxychlorid of zinc to be the best agent to bar out bacteria of any of the agents he had used. I would like to ask the essayist if he has had any experience with oxychlorid of zinc in that connection, not in the apical end of the root canal, but in the large portion of the canal, and particularly in the pulp chamber.

Dr. Cook (closing):

I appreciate very much the discussion on my paper. We all know that experiments of this kind cannot be absolutely carried out as we would carry out our technic in the mouth. As I stated in the beginning, I tried to put the conditions as nearly as we would find them in the mouth, because in working out of the mouth I had to formulate some method by which I could carry on these experiments.

While I did not mention all the things that I used, for it seemed to be useless, I did carry out experiments with oxychlorid of zinc and gutta percha. The thing that gave the best result, first, was the chloroform and gutta percha or chloro-percha as it is usually used. That seems to have been the best antiseptic or has the best retaining properties, due to the fact that it held the chlorin in the gutta percha. That was a thing I could not understand, namely, why it would do it longer than anything else until I took gutta percha and found that it had gotten practically hard, that there was none of the C. H. or hydrocarbons in there; that the chlorin remained much longer than it would. Chlorin is an antiseptic agent. I did not use thymol in the Cochran preparation for two or three reasons: the first reason was that thymol is very irritating; secondly, the thymol and the chlorin are not very compatible with each other, and it destroys the chlorin in the gutta percha if you put it in there, and I think Dr. Cochran's idea with regard to the use of thymol is not perhaps the best one in connection with it.

Dr. Hinkins:

May it not be a fact that, inasmuch as the atomic weight of hydrogen is one, carbon is seventeen, and chlorin thirty-seven, the specific gravity of that being greater possibly would hold them in contact with the gutta percha and let them evaporate quicker?

Dr. Cook:

That may be. I have not thought of it. As the atomic weight of chlorin is heavier it might remain there, but I think the gutta percha acts as a kind of catalyzer to the chloroform. It splits it up, and the hydrocarbon compounds are driven off very soon, and that is another reason for the shrinkage of chloroform, or rather the bulk of the chloro-percha. It shrinks very considerably. It loses weight in fact. After leaving it in the open air for a little while it loses weight continuously, or for a considerable time, five days, I think, and it ceases to lose weight, but you can find chlorin in there, but none of the hydrocarbon.

With reference to the Cochran preparation I think I made a mistake in using the word eucalyptus; it should be eucalyptol. The chlorin in the gutta percha has strong antiseptic powers, much stronger than either one used separately. Eucalyptol is not very antiseptic. The chlorin and the eucalyptol are extremely miscible together. You can combine them easily and the eucalyptol carries a large quantity of the chlorin in it. There is no question in my mind but there are a lot of root canals which are improperly filled. We can fill root canals with sterile mud if the root canals were rendered sterile, and it would probably make a good filling.

With reference to the remarks made by Dr. Carpenter, I will say that I removed a root canal filling that his father put in twenty-six years ago, and the root filling consisted of a little piece of the finest tape twisted. The patient, after thinking over the whole question, said that the root canal of that tooth had been filled twenty-six years before by Dr. Carpenter. I found it very difficult to take it out. The canal was filled to the end. There had been some absorption of the root, and it was irritating, and I took out the root canal filling. There was a strong odor of creosote about it. That in itself illustrates the one point to my mind which I tried to bring out in my paper, namely, that it does not matter so much with what you fill root canals, so long as you secure them from the ingress of the flow of serum which will pump through the apical end of the root, especially if it is any size, and the root canal will become moist and remain so, and sometimes it is simply weeping serum, and sometimes there are serous sacs formed at the end of the root after it is filled, so that if you can get a stopping in there, so that your root canal is aseptic, bacteria do not pass through internally through the filling unless there is a defect, then the tooth will contract and finally the dentin will give way and you will have debris in there, but if there is a fairly good filling in the tooth the bacteria do not enter from the outside except they enter through the decayed portion of the tooth. The main thing is to secure an aseptic condition, and this condition cannot be secured by treating root canals today and next week treating them again. You cannot render a root canal aseptic in that way, and the only agent I have found which would enable me to secure asepsis in root canals was tricresol and balsam of Peru. The two agents apparently render these canals absolutely aseptic.

Dr. Kester:

Separately or combined?

Dr. Cook:

Separately. I do not combine them because they do not combine very readily. If you get the root canal fairly aseptic and fill it with an aseptic preparation, you may secure the same results that you would secure in some other way, and that is what I think we do most of the time. We get them as nearly aseptic as possible and fill them with something that is aseptic, and they stay for a long time. Infection does not return to the root except through the circulation. It must go through the coronal portion of the tooth, so it must be carried through the circulatory apparatus, and that is rather unusual, to the tooth. It may come from some other part of the body, but it does not come to the roots of the teeth very much.

We have been taught that oil of cassia is the best antiseptic alone of the essential oils and it is very poor as a rule. But if you take a saturated solution of oil of cassia and alcohol, you get one of the highest antiseptic agents that you can get out of the essential oils, because you liberate the terebens that are in there. In other words, you do not destroy the antiseptic terebens, you will liberate the terebens in the essential oil that cannot get out unless you break them up, so that the principal thing that I have pointed out to you tonight—and there is nothing specially new in it—is simply a reiteration of some of the things we know practically, and that is to get root canals as aseptic as possible and fill them with an agent that is as aseptic as possible, and I told you that you can get this aseptic agent in the Cochran preparation with the eucalyptol without the thymol, and that is the principal point I wanted to bring out. You cannot get it as aseptic and as diffusible through tooth substance with other agents as you can by using the Cochran preparation.

Dr. Kester:

I would like to ask Dr. Cook if it is true that very few teeth are infected through the apical end of roots?

Dr. Cook:

No, sir. I think there are very few. It is very hard to say, however. I think if there was irritation at the end of the roots, and there were bacteria circulating in the blood, it is possible they might be transferred there, but they would not be transferred except through the white blood corpuscles picking them up somewhere else and carrying them there because of the slight irritation. There would be an increased number of leucocytes in the blood and they might be carried there in that way.

Dr. Kester:

My experiences has been that some teeth that have been filled have become sore, even though they are hermetically sealed or are supposed to have been, on account of irritation at the apical ends, due to decomposition of the contents of the canal, making it easy for bacteria to enter. It seems to me, in these cases the roots were imperfectly filled. We know there is a collection of fluid there which probably undergoes decomposition, and undoubtedly a large proportion of the cases of sore teeth and diseased teeth must become infected through the apical end of the root through the circulation.

Dr. Cook:

I do not think so, unless the bacteria were left in there when the canals were filled. I have taken some of those teeth and investigated them, and have found the organism of pulp gangrene which has a tenacious life. Sometimes through external irritation the internal parts become irritated and the bacteria get enough organic material to re-establish growth.

THE DENTAL REVIEW.

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PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

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EDITORIAL.

THE NEED OF VOLUNTEERS.

The awakening interest among the laity in regard to the importance of saving the natural teeth is becoming so widespread that it is going to introduce a problem for the dental profession to solve. It not only tends to increasing demand for dental service on the part of people able to pay for such service, but it is educating many of the poorer class whose teeth in the past have been almost entirely neglected through ignorance. It were worse than folly for the dental profession to devote its energy toward educating the people unless some means shall be devised for caring for those who are to become conversant with the need for dental service, but who are too poor to pay for it.

We predict that within the next few years the dental profession is to be put to the test in a way that it has never been before. The test is to decide whether or not we are a philanthropic and humanitarian profession. We shall be called upon to meet the emergency of a large influx of work coming to our doors, much of which cannot be paid for in any substantial way, and it remains to be seen how well we shall stand the test. If we demonstrate the true professional spirit and organize and man clinics for the care of the teeth of the poor it will place us in a better and more dignified relationship with society at large than we have ever occupied before. The moment we show that we have an interest in the community, instead of merely in the individual who comes into our office, that moment we shall attain a different status in the estimation of the world.

To do all the philanthropic things which are rightfully ours to do we must have volunteers from the profession who will sacrifice something of self and devote part of their time and energy to the common good. We confidently believe that these volunteers will be forthcoming.

Our faith in the unselfishness of the profession has been greatly strengthened in the past few months by a demonstration which has just been made in Chicago. Volunteers were asked for in the Chicago Dental Society to make examinations of the school children's teeth. Nearly two hundred responded to the call, and during the last few weeks of the school term these men and women spent a half day per week in this work. Some of them became so enthusiastic that they devoted much more time than this, and at a meeting of these examiners held in the assembly room of the Department of Health at the close of the school term the room was crowded with the most enthusiastic and interested group of dentists which we ever remember seeing together at one time. The spirit manifested that night augurs well for the oral hygiene movement in Chicago.

BOOK REVIEWS.

VON DER UNTERKIEFERRESEKTIONSPROTHESE. BY DR. J. BILLING, STOCKHOLM, SWEDEN.

This is a most interesting volume in the German language dealing with the pathological anatomy of the mouth and jaws and their restoration by prosthetic means after operations. Dr. Billing has amplified his work with 118 original illustrations showing many kinds of pathological growths, the results of operations for these growths and the mechanical means for restoring the parts to their normal form and function. He has shown great ingenuity in the management of the cases and has given much time and effort to the preparation of the present volume. The profession is under obligation to him for so worthy an addition to its literature.

SVENSKA TANDLÄKARE SÄLLSKAPETS HISTORIA. BY MÄTTE SCHMIDT AND HARALD RAMBERG.

This is a history of the Swedish Dental Society for the past fifty years and was issued on the occasion of the semi-centennial held in November, 1910. It is a volume of 284 pages and is a credit to the authors and to the society. It contains illustrations of the various buildings and portraits of the prominent men connected with its history. The profession of Sweden may well look with pride upon this evidence of their society's growth and standing, and it is a very fitting memento of a half century's society effort.

ESSENTIALS OF OPERATIVE DENTISTRY. With illustrations. By W. Clyde Davis, B. S., M. D., D. D. S., Dean and Professor of Operative Dentistry and Technic, Lincoln Dental College, Associated with The University of Nebraska, Lincoln, Nebraska. 266 pages. Published by the Author, 1911.

This volume is divided into 44 chapters, made up as the author frankly states mostly from the "writings, teachings and utterances" of others. Dr. Davis has gone to great pains to gather together and condense the most significant thought on the subject and is thus enabled to cover much ground in a comparatively small space. Some of the information, it is true, seems fragmentary and yet this cannot be avoided in such a treatment of any subject, particularly a subject where technical procedures are to be explained. The book has a useful place and we wish the author success with it.

A PRACTICAL MEDICAL DICTIONARY. By Thomas Lathrop Stedman, A. M., M. D., Editor of "Twentieth Century Practice of Medicine," Editor of the "Medical Record." Illustrated. 1000 pages. Price, thumb indexed, $5.00; plain, $4.50. Published by William Wood and Company, New York, 1911.

This dictionary is very complete in every essential. It gives the derivation of all words from the Anglo-Saxon as well as Latin and Greek, and it indicates the pronunciation. Besides the regular medical terms it includes dental, chemical, veterinary, botanical, insurance, homeopathic and eclectic terms. From this its breadth of treatment may be indicated. The mechanical make-up of the book is excellent.

THE DENTAL DIRECTORY, 1911. Published by John Bale, Sons & Danielsson, London.

This is a directory of the registered dental practitioners of the United Kingdom, Channel Islands, the Isle of Man and the colonies abroad. Price, two shillings and sixpence, net.

DR. JOHN QUINCY BYRAM.

OBITUARY.

DR. JOHN QUINCY BYRAM.

At Indianapolis on June 28, 1911. The profession of Chicago was greatly shocked on receiving the sad intelligence of Dr. Byram's death. He was known to so many here, and was so generally beloved that his passing away was a severe blow. He had been in Chicago only a few weeks before his death, had mingled freely with his long time friends, and when the terrible news came it was almost unbelievable. A delegation went from here to Indianapolis to attend the funeral and pay their last respects to one of the most lovable men who ever graced the dental profession.

The following biography was written by his close friend and fellow-worker, Dr. George Edwin Hunt:

"Dr. John Quincy Byram was born in Paragon, Ind., June 1, 1871.

"When he was 19 years of age he went to the State of Washington, where he served for three years as assistant in the dental office of Dr. L. E. Ervin, of Seattle.

"In 1893 he came to Indianapolis and took up the study of dentistry at the Indiana Dental College, where he was graduated with honors in 1896. During his three years' course in dentistry he maintained a dental office in Irvington, a suburb of Indianapolis, practicing by license of a permit granted by the State Board of Dental Examiners. After his graduation he retained his practice in Irvington until the fall of 1896.

"In 1896 he accepted a position in the Indiana Dental College as clinical instructor in the infirmary.

"In the fall of 1898 he gave up his practice in Irvington to devote his entire time to teaching at the Indiana Dental College. His first chair with the faculty was that of Prosthetic Dentistry. In 1901 he took the chair of Crown and Bridge Work. In 1902 he began his self-prepared course of instruction on porcelain work. In the meantime he had charge of all the teachings of prosthetic technic from 1896 to 1908. From 1908 until his death he taught Advanced Technic, Prosthetic Dentistry, Crown and Bridge Work, Porcelain Work and was Clinical Instructor at the college.

"The first of August, 1908, Dr. Byram entered into the active practice of dentistry, in the Willoughby Building, associated with Doctors H. R. McKinstray, Arthur Goedel and Carl D. Lucas.

"In 1906 he served as president of the Indiana State Dental Association, and in 1911 as president of the Institute of Dental Pedagogics, at the Washington, D. C., meeting.

"He was an active and enthusiastic member of the Delta Sigma Delta Fraternity and was elected Supreme Worthy Master of the Fraternity at its Denver meeting in 1910, having served for four years previously as Treasurer of the Fraternity.

"In 1907 he published a book entitled 'The Art of Filling Teeth with Porcelain,' which work has proven him to be authority in this line of dental surgery.

"His services as lecturer and clinical demonstrator were very much in demand and for the past eight years he has lectured upon and demonstrated scientific dental operations before dental associations in nearly every state in the United States. To do this meant incessant labor and much thought. He was never known to shirk a duty, no matter how large nor how small. Unselfish in all dealings with his professional brothers and every one with whom he came in contact. Always possessing a happy, jovial disposition, ever ready to help his fellows and always ambitious to gain further knowledge in his profession, he was loved and respected highly by all who knew him.

"On account of over work his health had rapidly been failing for the past two years and although he had tried hard to pull himself together, he felt it impossible to recover.

"On the night of June 28th, 1911, in a moment of mental aberration, he took his own life, in his private office. He left a note as follows: 'My nerves are gone, I have tried hard for two years to get well and I find I am getting worse every day. If this keeps up I will be unfit for anything. I cannot stand up under this strain any longer.'

"His widow, Martha C.; a son, John Quincy, Jr.; a daughter, Mary Anna, of Indianapolis; his mother, Anna, and sister, Anna D., of Irvington; and his brother, P. M. Byram, of Camden, Ark., survive him.

"He was buried in Crown Hill Cemetery, Indianapolis, Ind., July 1, 1911."

CORRESPONDENCE.

LETTER FROM DR. SPAULDING.

Editor DENTAL REVIEW:

We see so much said recently in our dental journals about the care of the teeth of poor children,—if gold or amalgam should be used—if the rubber dam should be used and if not, why not? It seems to me that when a man has graduated in dentistry from one of our reputable colleges he should be qualified to judge for the best interests of the patient, coming to his office, old or young, rich or poor, and he should have strict honesty to carry out that judgment to the best of his ability, doing by them as he would like to be done by. I think that the teeth of poor children should be looked after and they educated to that point where they realize that their teeth are only given to them once and that they are theirs—not papa's or mamma's—but theirs, and if they neglect them they, themselves alone, will suffer. W. A. SPAULDING,

Hyeres, France.

LETTER FROM DR. A. H. THOMPSON.

To the DENTAL REVIEW:

AN OPEN LETTER TO MY FRIENDS OF THE DENTAL PROFESSION: I take this means of acknowledging the magnificent gift from my professional friends all over the country on the occasion of the supper given by the Kansas State Dental Association, June 7, 1911,—to express my sincere and heartfelt thanks for the remembrance. Unworthy as I feel myself to be of this great manifestation of love and esteem, I cannot but accept it in the spirit in which it was given and assure my friends that I fully appreciate and reciprocate their love and friendship. Love is the greatest thing in the world and I feel thankful that I have lived to this day that was made so memorable by this outburst of affection from my friends both far and near. This occasion will sweeten all the rest of my days, be they few or many, as I glide towards the sunset, and make me feel glad that I am alive and abide in the hearts of my friends. I thank and bless them all. Sincerely yours,

ALTON HOWARD THOMPSON.

PRACTICAL HINTS.

EDITED BY J. E. SCHAEFER, D. D. S.

(This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.)

To Remove Models from Articulator:—To remove the plaster model from the articulator bow, put some HCl or H_2SO_4 on the model where the bow is imbedded; this will soften the plaster around the bow and allow the model to be removed without breaking.—*Michael H. Diratsouyan, Oklahoma City, Okla.*

A Help in Placing Inlays:—In those cases where a gold inlay does not quite go to place and the trouble cannot be located on the cavity surface of inlay, dry cavity thoroughly and after forcing inlay to place remove and carefully examine the cavity. The inlay will often have left a mark on the dentine, which shows where the trouble is.—*E. S. Best, D. D. S., Minneapolis.*

Casting by Steam Pressure:—If you are casting with steam pressure your ring should be nearly red hot before setting the case on the machine and avoid direct drafts of air on the case while casting. Do not trip your machine until the gold clears up from the bottom and dances in the crucible. Use a jeweler's magnifying glass (with a spring going over the head) to detect projections which may be on the inlay and would prevent it from going to place. Always polish the margins of the inlay after it is set.—*Arthur E. Peck, Minneapolis.*

Reproduce Contact Point:—In making gold inlays it is occasionally necessary to add a small piece of solder for contact. With inlays of the lower fusing metals, such as: Acolite, Weston's metal, etc., this is obviously impossible. A nice, quick way to overcome this difficulty is to take a small piece of the metal and fuse it onto the contact point with a hot instrument just as you would wax. Have everything perfectly clean and hold the inlay in the fingers so there will be no chance of overheating it.—*O. De Forest Davis, D. D. S., Minneapolis.*

How to Control Nausea:—Nausea may be controlled by having the patient breathe through the mouth while impression is in position, thus preventing it from touching the posterior surface of tongue, which is the sensitive point, and not the palate as suggested.

Upper dentures very often cause nausea for the same reason, but patient may become accustomed to them by trying mouth breathing when the nausea comes on.

Cocain application to the soft palate would not be effective did it not affect the tongue, which comes in contact and absorbs a share.—*O. L. Frazee, Springfield, Ill.*

Moist Gangrene:—Moist gangrene or putrefaction of the dental pulp is a pathological condition in which the dead tissue is decomposed by saprophytic bacteria in the presence of moisture. It may be found in teeth apparently sound, in which the bacteria may gain access, through cracks in the enamel, defective fissure, or perhaps through the general circulation, in cases where the pulp dies under filling or when the canals are improperly cleaned of pulp tissue and only partly filled and in teeth with opened cavities and canals.

Saprophytic bacteria, bacillus gangrene pulpae (Arkovy) in the main acting upon the dead tissue with the result of the serial decomposition and characteristic odors of putrefaction. Albuminous substances are changed into toxic peptones.—*M. L. Schmitz, Chicago.*

Syncope:—Patient should be laid prone. Clothing loosened if necessary. Give plenty of fresh air and bathe face in cold water. Volatile salts may be inhaled. If recovery is slow, brandy or aromatic spirits of ammonia, in fl. dr. ss-ij doses, may be given internally as soon as deglutition is possible. There is little danger in simple fainting, but to distinguish between syncope and some phases of heart failure is not so easy, and it is fortunate for us that the treatment for both is along the same lines. Although in no way a sure criterion, the pulse is here our most valuable guide, for while in fainting it may be markedly lowered in force, it is usually fairly regular, but in heart failure whether from the toxic effects of cocain or from other altered function, it is usually intermittent, erratic and often almost entirely disappears.—*Dr. Geo. O. Webster, Berlin.*

Occlusion Plus Articulation. No. 3:—First—The models must be mounted so that they are in the correct relation to the articulator joint: i. e., in the correct anterio-posterior position. If we do not observe this point we have deviated from the conditions of the mouth, and no matter how carefully we arrange the teeth we shall have faulty articulation. If the models have been mounted too close to the articulator joint we find that in articulation the posterior teeth will strike too quickly; preventing contact between anterior teeth. If the models have been mounted at too great a distance from the articulator joint the anterior teeth will strike hard and prevent contact posteriorly, when the dentures are articulated.

Second: The models must be in the proper plane between the bows of the articulator. We can readily see, that if the models are not parallel to the occlusal plane, and the occlusal plane not parallel to the bows of the articulator, we will have failed to reproduce a most important position, which will be another factor in causing faulty articulation.

Third: The models must be in proper relation to each other; this position is obtained by what is generally known as taking the bite. We shall hereafter refer to these positions as the first, second and third.—*J. E. S.*

Novocaine as a Substitute for Cocaine:—Doubtless all who use Cocaine for local anaesthesia have experienced at some time its poisonous and alarming effects upon certain patients. Combined with Adrenalin it can be used with much greater safety, but even in this combination and used in weak solution, if there be an idiosyncrasy against the drug symptoms of poisoning may appear before sufficient quantity has been injected to anaesthetize the area desired for some of the more extensive operations in the mouth.

In Novocaine, combined with Adrenalin, we have a substitute for Cocaine that gives equally good results and is many times safer. Perhaps a specific case where the relative merits of Cocaine and Novocaine can be compared, might be interesting.

Miss S. at three different sittings a few months apart received injections of Cocaine and Adrenalin, 1½ per cent solution, once for opening into antrum and twice for curretting abscess pockets. She showed a marked idiosyncrasy against Cocaine and each time it was injected symptoms more or less alarming appeared. In fact Cocaine had to be used so sparingly that at no time could the desired area be anaesthetised, and the operation was more or less painful and could not be thoroughly done. The patient presented herself a few months later. One abscess had healed, the other had not. It was decided to use Novocaine and Adrenalin this time and amputate the end of the root, an upper bicuspid. After injecting a few drops of a 1½ per cent solution and waiting a few minutes without the appearance of any unpleasant symptoms, it was injected freely, and the end of the root amputated, without a particle of pain or inconvenience to the patient. The patient remarked that she was not sick this time and asked the reason why. She said also that it had always hurt before and she dreaded coming, but it hadn't hurt a bit this time.

The results in this case were so gratifying that I have continued the use of Novocaine and Adrenalin, not that it is more powerful, but that it may be used more freely and the anaesthetic effect lasts much longer than that produced by Cocaine.—*J. A. Heidbrink, D. D. S., Minneapolis.*

MEMORANDA.

INDIANA STATE DENTAL ASSOCIATION.

The next annual meeting of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, Indiana, May 21-22-23, 1912. The association has adopted as the slogan for this meeting, "1,000 Members in 1912." New and original plans have been perfected to make this meeting the "banner" meeting in our history.

Otto U. King, Secretary, Huntington, Ind.

VANDERBILT UNIVERSITY—DEPARTMENT OF DENTISTRY.

At a meeting of the Board of Trustees of Vanderbilt University, the committee to whom were referred the various reports and recommendations of the Chancellor made reports, and a number of items of business were acted on.

The general suggestions regarding the utilization of the Peabody property were approved and the Executive Committee was authorized to proceed with all rebuilding operations. Such reorganization as may be necessary in the Dental and Medical Departments was also referred to the Executive Committee, but the board itself elected deans for these departments.

Dr. D. R. Stubblefield, who has been dean of the Department of Dentistry for many years, presented his resignation on account of ill health. This was accepted with suitable expressions of regret by the board at the circumstances that made it necessary. In place of Dr. Stubblefield Dr. Henry W. Morgan was elected Dean, and as Dean was made Chairman of the Executive Committee of the faculty, whose other members are Drs. Dale and Bogle. This Executive Committee will aid the Dean in the management of department business.

Dr. Wm. L. Dudley was re-elected Dean of the Department of Medicine, and will give active attention to the revision of the curriculum and to the preparation of buildings for the work of the department next year. A number of committees will be appointed from the faculty to aid him in this work.

RECENT PATENTS OF INTEREST TO DENTISTS.

976,153.—Tooth crown, Charles E. Coleman, Fort Gaines, Ga.

976,796.—Blowpipe, Bernard C. Gilligan, Toledo, Ohio.

976,798.—Artificial tooth, Frank Z. Hanscom, Chicago, Ill.

977,633.—Dental crown, Fernando O. Jaques, Jr., Cranston, R. I.

977,805.—Sanitary head rest, Ernest E. Koken, St. Louis, Mo.

977,895.—Dental appliance, Lloyd G. Morgan, East Orange, N. J.

978,062.—Air compressing apparatus, Percy Russell, New York, N. Y.

977,557.—Porcelain crown, Heinrich Schweitzer, New York, N. Y.

977,558.—Making dental tooth posts, Heinrich Schweitzer, New York, N. Y.

977,906.—Dental spatula, Benjamin Shopp, Washington, Conn.

978,439.—Dental crown forming tool, Richard R. Braswell, Shreveport, La.

979,290.—Saliva tube for dentists' use, Harry F. Hamilton, Boston, Mass.

978,910.—Mouth illuminator, Theodore G. Lewis, Buffalo, N. Y.

981,638.—Dental cleaning device, George B. Hakins, Norwood, N. Y.

981,430.—Dental articulator, Patrick A. Kennedy, Redfern, near Sydney, New South Wales, Australia.

981,476.—Dental impression tray, John A. Rowse, Newquay, London, England.

980,751.—Split sliding swiveled dental molding, ring, Philip Bourne, New York, N. Y.

980,238.—Fan attachment for dental engines, Jonathan S. Frisbie, Rotan, Texas.

980,411.—Dental impression tray, William M. Gantz, Westerville, Ohio.

980,529.—Dental matrix retainer, James W. Ivory, Philadelphia, Pa.

980,530.—Rubber dam clamp, James W. Ivory, Philadelphia, Pa.

980,422.—Dental apparatus, Peter A. Kanouse, Los Angeles, Cal.

979,493.—Sanitary dental bracket table, Gustav Holtz, Gouldsboro, Pa.

979,501.—Dental instrument for crown or cap holding, James W. Ivory, Philadelphia, Pa.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

THE WAIL OF THE GINGIVAE.

She first came to town as a pink chunk of clay,
  Soon bathed, soon fed, soon tucked away,
The neighbors called in the new baby to see,
  "She looks like her mother," Dad says, "not me?"

She cried and she smiled, and she did all the things,
  That all babies do, only better—she sings,
So stated grandmama, who undoubtedly knew,
  The family tree for a generation or two.

The trouble began, as is usually the case,
  The baby putting everything into her face,
Till mother discovered the wonderful truth,
  All records are broken—she's cut a new tooth.

Around and between the beautiful pearls,
  That soon came along to match with her curls,
There developed some fibers of tissue complex,
  The story of which the reader's patience may vex.

The pearls came and went, others taking their place,
  Nature enlarging the jaw and changing the face,
Thrice daily massaged these fibers complete,
  For extra; gum chewing and candy, and meat.

The fibers, elastic, enjoyed the rough play,
  And came up smiling, until one fatal day
A crush, a jam, a yell, mama called,
  A glance, and the patient to the dentist was hauled.

"Now quiet, my dear, it won't hurt a mite,
  My skill in these matters is quite out of sight,
A filling, I'll place in the cavity there,
  So gently your troubles will fade to thin air."

That night in the space where the fibers had played,
  A new tenant lived with his rent prepaid.
He lodged there remorselessly hard and tight,
  And crowded the fibers till it brought on a fight.

The bloody and wounded were carried away,
  There was little relief from the terrible fray.
Till the carnage completed, the filling had won,
  The fibers moved out, knowing they had been stung.

To placate the grief of the vanquished clan,
  The filling removed, on went a gold can,
Insult to injury, the fibers rebel,
  The interproximal space was all shot to——smithereens.

—ESH.

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COMPENSATIONS OF PROFESSIONAL SERVICES, AND COMPENSATIONS OF SERVICES TO THE PROFESSION.*

BY DR. EDMUND NOYES, CHICAGO.

The following quotation from Paulsen's System of Ethics, page 505 may not at first sight appear to have much relation to the subject announced, but I believe it does have important relation to it, which I am sure you will readily perceive as I proceed:

"The function of the body is to serve as the organ and symbol of the soul. There is no difference of opinion concerning this practical estimate of the two phases of man's nature. Even the materialist, who regards the soul as a passing function of matter, will accept our proposition; for him too the body is the servant of the soul. Every one is likewise agreed as to what constitutes a good servant. To accomplish and endure much and to demand little,—these are the qualities which we all consider valuable in a servant. These also determine what is desirable in a body; the healthy, strong and hardened body endures much and wants little: the sickly, weak and pampered body does little and makes great demands. Hence follows the rule of duty: Do what is suited to preserve and increase the health and strength of the body; avoid what impairs and weakens it. The other function of the body is to express or symbolize psychical life. Beauty and grace are the visible corporeal manifestations of a good and beautiful soul. Grace is acquired beauty; the quiet security of the soul which is master of itself, is reflected in quiet, steady and appropriate movements. Hence follows the rule of duty: Educate the body, so that it may appear in this visible world as a pleasing expression of the invisible beauty of the soul."

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*Read before the Winnebago County Dental Society, April 22, 1911.

If, then, the intellectual and spiritual life is better than the bodily life, you may be prepared to have me say that the best compensations of professional services are intellectual and spiritual rather than material.

The pleasures we feel in the exercise of skill, and the use of knowledge, experience and judgment, in the performance of daily tasks, as well as for the solution of the difficult problems often encountered in practice, furnish the incentive and encouragement to keep our wits sharp, our knowledge and experience fresh and accumulating, and to maintain without flagging our highest level of efficiency.

Much better than these, because others besides ourselves are more directly sharers in them, are the satisfactions we feel in duty done, in services rendered by which pain is relieved or averted; beauty and symmetry preserved or restored; comfort, health and long life promoted; and by reason of all these, the efficiency, usefulness and pleasure greatly increased for the people whom we serve.

It is gratifying to observe that these higher motives and rewards are making a stronger appeal than formerly to the dental and medical professions, both individually and in their organized societies. The results are seen in the efforts of health officers, under the authority of the states or the nation, to restrict the spread of contagious diseases (some of these modern science has shown the possibility of exterminating altogether), to control and purify the milk supply, the water supply, the disposal of sewage and garbage and to provide by law for the purity and honesty of foods and drugs. All these have a tendency to diminish the business and income of the medical profession, such efforts and activities being essentially unselfish and philanthropic, and the compensations moral and spiritual rather than material.

It can be said on the other side, however, that if the average health and efficiency of the whole community is raised by keeping large numbers at work who would have been sick, and relieving a still greater number from the expense of caring for those who would have been sick, the community becomes better able to provide for all of its members, doctors included, than it was previously, and it may happen, by and by, that our towns may need a less number of doctors than at present, but those who are needed may receive better compensation than now.

The dental profession has never yet been able to serve anything like so large a proportion of the population as the medical profession does, and however great the success may be of the present efforts of the profession for oral hygiene and prophylaxis, and for the instruction of the people, especially the school children, in the care of the mouth and teeth; and however much caries and other diseases of the teeth and mouth may be diminished thereby, the demand for dental services will not be diminished, but will be increased by bringing within our reach great numbers of people who have heretofore kept away from us except for the relief of pain by the extraction of teeth. Therefore, while we need not discredit the philanthropy and public spirit which inspire these efforts to instruct the public in the laws of oral health, and in the nature and the importance of the services we are prepared to render, the efforts are not so much a pure philanthropy as a matter of co-operation, or "team work" on the part of the dental profession, for the mutual benefit of the people and of ourselves. While the material rewards for public services will not be absent the dollars will not be easily and definitely counted, which makes it the more easy, perhaps, to appreciate the moral and spiritual rewards attending it, and as a matter of fact, we shall probably find that the people to whom these higher motives and rewards make little or no appeal will prove indifferent to and take little or no part in the campaign for public instruction and public service.

If the best rewards of professional services, whether in private practice or in public service, are intellectual, moral and spiritual, these are not the primary and most essential ones. In this world we may not have a spirit without a body, and neither may we have the higher and better rewards of professional services unless we have a sufficient amount of fees, paid to us in good bank notes and checks. How large the fees should be and what the principles and methods of estimation, are questions of vital interest to all of us, and respecting which there are very great differences of opinion and judgment and probably still wider differences in actual receipts.

Perhaps the simplest way is to charge all we can get without losing our patients, and if along with this there be due regard for the claims of charity, and for the relation between income and the financial burdens they have to carry in cases of the poorer of our patients, possibly this method will work out about as fairly on the average as any other. It requires good judgment, and everyone will make the mistake sometimes of driving away a patient he desires to keep, and at other times charging less than he might, and ought to receive, and if he is a very timid man, like Dr. Townsend of Pontiac, of blessed memeory, he may work himself to death before his time and die in poverty without ever receiving more than one-half or one-third of what he deserves and might get.

A circumstance came to my knowledge recently which illustrates very well the great diversity in what different men receive for services rendered under approximately similar circumstances and for similar purposes; whether the services themselves were similar it is impossible for anyone to tell, and undoubtedly in each case they were the best the respective men were able to render. A man practicing in Chicago made a bridge having two abutments (crowns or inlays), and one or two dummies, from one of the bicuspids to one of the molars, he also made a crown for an upper lateral incisor, the bridge was charged $500 and the crown $80. (There was probably treatment and root filling included.) I know at least one man who usually gets for an incisor, or other porcelain faced crown, $20, occasionally $25 and another who gets $35; and for bridges these men get about the same for crowns or inlays upon the natural teeth or roots that support the bridge and from a third to half as much for each of the dummies. (It is rarely that I know much about what other men are getting for any particular operations, but these I happened to hear about in a reliable way.) It so happened that the patient who had the $80 crown went for his vacation somewhere in Michigan. One morning, while taking his morning bath in the lake, he came up and threw out a mouthful of water, and the incisor crown went out with it. He hunted up a dentist in some nearby town in Michigan and persuaded him to work the best part of Sunday putting in a new crown, for which he was charged $5. I have certain information that the man who charged the largest fees named, regularly and with practical uniformity charges and collects similar fees, and the same is undoubtedly true of the man who charged the lower of the fees named.

Ever since I have been in practice I have heard about the people who have an ambition to pay more than anybody else does, or who think a man is not much good unless he charges preposterous fees. I have always regarded these people as rather mythical; at any rate, if any of them got inside my office door I failed to recognize them. Perhaps the first of the men I have referred to and a few others like him (a very few of whom I could perhaps name), attract all there are of this class of patients, leaving none for you and me. That there is a very wide discrepancy in the skill and judgment shown, and in the consequent usefulness of operations made under similar circumstances by different men is known to everybody. Whether it is as great as between $5 and $80 for a crown or between $75, more or less, and $500 for a bridge, I am unable to say, perhaps it is in some cases. It is fair to suppose also that in some very broad and rather uncertain way there is a correspondence between the fees charged and the excellence of the services rendered, but the correspondence is not very close nor very definite, for we all know that some men get excellent fees for very indifferent services and that some other men get very indifferent fees for excellent services. There is no help for this and never can be any so long as the best that honest men can do differs so widely in excellence. It is the same among doctors, lawyers, preachers, mechanics, salesmen, and in all other lines of life.

I believe there is in the medical profession better team work than in ours and a better understanding and agreement about the average fees for certain services.

Probably it would be advantageous for us to imitate the doctors in this respect. If a fee bill is promulgated, it should name the minimum fees for the services specified, and there should be a general understanding that they are to be lowered only as a concession to poverty, and never in any competition for business, and there should be the most perfect liberty to advance above the minimum fees according to the greatly varying circumstances, which make it proper for some to advance above the minimum all the time, and for everyone to do so at some times. There is the further question of how the real value of professional services is to be determined. Some are disposed to say that good dentistry is beyond price, and its value cannot be estimated in money, and therefore no matter how much we receive it is less than it is worth, or to put it in another way we may ask as much as the person would be willing to give in preference to going without the service altogether. But none of us would like to have the grocer charge as much for flour as we would be willing to pay in preference to going without bread, or the shoemaker what we might give in preference to going barefoot. And groceries and shoes are priceless to us in the sense that we cannot do without them, quite as truly as are dental services.

A good many men make their fees in close correspondence to the time spent in making the operations, and time is so important and so unyielding an element in the cost of our services that it may very well have large, though it should never have exclusive influence in determining fees, and in my opinion we should be careful not to have our patients think that time has a too important relation to the amount of their bills. We pay plumbers, carpenters and other mechanics by the hour, and if we wish our patients to think we are nothing but artisans, instead of professional men, charging strictly by hour will go a long way toward making them think so.

Fees will of necessity have relation to the average financial ability of those we serve, and to the prices charged by the reputable men in the same town, especially if there is any semblance or approach to uniformity.

The winning of a lucrative practice depends more on a man's personality, his good character, intelligence, pleasing manners, agreeable conversation, scrupulous neatness, cleanliness, and good taste in everything about his dress, his office furniture and equipment, and polite consideration for his patients' comfort and convenience, and what commercial people would call good salesmanship (of which all the above items are necessary elements, but by no means constitute the entire sum), than upon his professional ability. Good salesmanship for us amounts to about this: to be able to persuade people that they really want what we are sure that they need, and incidentally, that they greatly prefer that we should do it for them, rather than to go to some other man for the service.

You may possibly think I am undervaluing professional knowledge, skill, good judgment and the consequent success of operations and services generally. I do not intend to. If a man does not "make good" in these respects all extrinsic aids may fail him in the end and they ought to.

If a man wins professional and financial success what should he do with his income? First, he should maintain his office equipment at the highest standard of efficiency. He should provide for the health, comfort and education of his family, and if tempted to self indulgent luxury, or to an ambitious rivalry to "show off," everything relating to the manner of living may be brought to some such test question as this: Does it promote or hinder the best development and use of life? I know this is a vague question but if frequently asked, and honestly answered, it may be made of great service in determining plans of life and courses of conduct. Of course we must remember that the spirit is better than the body and should rule the life, and that the strongest motive for perfecting our own lives is that we may help other lives to the same end.

The greatest mistake anyone can make is to allow his spirit to become the servant of his body instead of its master.

What I have said about the best rewards coming to a man's spirit rather than to his pocket-book applies with still greater force to services rendered to our profession. With a few exceptions pecuniary rewards are not indispensable, more often they are unnecessary, for such services are usually rendered as side issues, in surplus time not indispensably required for the daily routine of remunerative practice. Furthermore, in the case of most of us everything we can do for our profession falls far short of paying the debt we honestly owe to it. If you stop to consider it, there is not an instrument or appliance that we use, nor a method or process that we follow that has not been invented or discovered, or thought out and described for us by some one or more of our predecessors or contemporaries. To be sure we pay the manufacturers for making them but usually that does not include pay to the originators of them; if it did, we owe to them, just as our patients owe to us, gratitude besides pay, and the only way this can be shown is by doing what we can ourselves for the benefit of our profession. There are usually some material benefits that come back to us. The contact and acquaintance with other men is sure to increase our professional knowledge and efficiency, and our professional brethren who know us through these activities may send us an occasional patient, but these are incidental and comparatively trifling.

Occasionally there is a service rendered to the profession so costly to the giver, as in the case of Dr. Taggart, that he must have a large financial reward to preserve him from bankruptcy, and to preserve the profession and the public whom we serve, from the humiliation of profiting to the extent of millions of dollars by the enforced contribution of a man who has financially ruined himself in making it. Other men have made contributions so valuable as to deserve financial reward, though they never asked for it and never got it. Such a man was Dr. Robert Arthur, to whom the profession is indebted for the use of cohesive gold, which since 1855 has been of incalculable value to us and our patients. Dr. Arthur never asked, and probably never needed any money reward for his great service to the profession in this particular. Another man who made a contribution that revolutionized practice was Dr. S. C. Barnum, who gave the rubber dam. He refrained from patenting his invention and formally gave it to the profession. There is no probability that this caused him any financial hardship at the time, for he is said to have had a successful practice in New York City and he never married. His health failed and he was unable to practice during the last years of his life and it has been asserted that he died a pauper. This can hardly have been strictly true for his biographer says he was annoyed by "some busybody" who circulated the story that he was in want and asked every dentist to send him a dollar. This story he "feelingly contradicted and whenever he could, returned the money." After he became unable to practice he lived with his father, and whether he was dependent upon him does not appear. Dr. Barnum received honors from dental societies everywhere and numerous valuable medals, and, I believe, from the American Dental Association a gift of $1,000 from its treasury. I am not sure whether he accepted that or not. These honors and gifts were very gratifying to him and I have not seen any evidence that he ever asked or desired any other reward from his profession.

Probably our own Dr. Black has made greater contributions to our profession than any other man in the world. I have called him the greatest man in the dental profession in this: that there are a greater number of men doing a greater number of things in a better way in consequence of his researches, discoveries, inventions, teachings and examples, than can be said of any other man of our profession.

There have been numerous expressions here and also in the East, of a desire, sometimes amounting almost to a demand, that he give up his practice, or later the administrative work in the school, and devote himself without interruption, or the necessity of earning an income, to research work for the profession, and proposals have been made repeatedly to raise a sum of money sufficient to make him independent of any necessity to earn an income, but I never heard that the subscription to any such fund ever amounted to enough to replace the income he has been earning, even for a few months. I do not know that he ever gave any encouragement to such efforts, perhaps because he was convinced of their futility. It is a question in my mind whether it would not have been better for the profession if Dr. Black had patented his amalgam formulas and process of manufacture and made such arrangements for their manufacture as would have given him a revenue large enough to make him independent of other sources of income and so free to devote himself entirely to the solution of the problems which he sees and believes might be solved, but which I believe he begins to perceive are too many and will take too much time to be solved in the remaining years of his life. I believe he was unwilling to do so for professional reasons, and he has been wise enough all his life to reserve enough time for remunerative work of some sort to preserve him at all times from any serious financial straits, and he is in no danger of want, however long he may live after he ceased to earn anything.

Concerning the propriety of obtaining compensation for services to the profession by means of the protection and monopoly conferred by the patent laws, there are among the members of our profession, radical, and for the present at least, irreconcilable differences of opinion. I cannot hope, and shall not attempt to arrive at any clear and definite conclusions that will appear convincing to everybody, possibly not to anybody.

There are a few facts that have rather an important relation to it, one or two comparisons that may have some illustrative use, and some ethical principles that seem to me to have bearing upon it.

There does not seem to be any difference in essential principle or ethical quality between the protection and monopoly conferred by a patent and that conferred by a copyright. The only difference that I can think of is the difference in the kind of things that are severally protected by the patent laws and by the copyright laws; but nobody seems to object to the protection and the profit derived from the copyright law, while many do object to the protection and profit derived from the patent law.

The "Principles of Medical Ethics" denies to physicians the protections of the patent laws. (It says nothing about copyrights.) The statement is in Chapter II, Article I, the first clause of Section 8: "It is equally derogatory to professional character for physicians to hold patents for any surgical instruments or medicines." Strenuous efforts have always been made by many individuals to hold the dental profession subject to this rule, and it is perhaps difficult to say on what ethical grounds it is any more applicable to the medical profession than to the dental. As a matter of fact there has never been, so far as I know, any action taken by any organization of dentists having the least authority to speak for the profession, or any part of it, which seeks to restrict the rights and privileges of dentists under the patent laws. It follows that while medical men must obey this rule or forfeit their professional standing, no such compulsion can be used upon dentists, and the appeal to them for its observance can only be made on grounds of justice or expediency.

It seems to me that the rule is open to pretty strong attack on several grounds. In the first place it is a rather serious question whether an organized body of men like the medical profession may, with justice and wisdom, and with the proper regard for the public welfare, nullify the law of the land in its application to the individuals of their profession. If a transgression of law were involved there could be no two opinions and the rule would have to be condemned, but denial of rights and privileges conferred by law is a different matter and may doubtless be done for the increase of professional usefulness or promotion of the public welfare. It would seem, however, that if a man who contributes something of real value is deprived by his profession of the emoluments provided for him by the laws of his country the profession must be under obligation to find some other way by which he may receive an adequate reward. There are but few rights or privileges that can be separated very far from some duties that correspond to them, and a good man, or a good profession should be quite as careful to perform duties as to claim rights. There is better provision in the medical profession than the dental for those who devote themselves to labors for the benefit of their profession to the exclusion of the opportunity of earning an income. There are several foundations in this country for the support of such men (most of them quite recent ones) and there are more in Europe, and there are professorships in some universities whose incumbents are expected to do but a small amount of teaching and a large amount of research work. There are no such foundations or arrangements in the dental profession, and there is no public sentiment, or sense of general or personal obligation sufficient to make any adequate provision for a man like Dr. Taggart, for instance, were he to surrender such rights as he may have under the patent laws. This entire absence in the dental profession of any provision for the adequate reward of those who render important public service at great expense to themselves, seems to me sufficient reason for the dental profession to refrain from adopting the rule of the medical profession in respect to patents.

The more fundamental question is as to whether the unhindered use and observance of the patent laws would more injure than benefit the medical or dental professions. I cannot answer this. Opinions will differ according to the point of view, the observation or knowledge of effects in particular cases, the manner in which individual interests are affected, and the ideas men may have of the extent of the sacrifices a man should make on the one hand, or the extent to which men may rightly appropriate the inventions of another without compensation of some sort on the other hand.

Both the profession and the public are able, and ought to be willing to pay a fair price for the things they use, and to compensate reasonably, not to say generously, those who discover, invent, develop or introduce new things that are valuable. The most important question relating to the whole matter is whether the perfection and accuracy of manufacture or production and the rapid and unrestricted introduction to general use will be promoted or hindered by the protection of a patent. Probably either result will happen in particular instances according to varying circumstances, and the ethical propriety of using or discarding the protection of the patent laws should probably be decided upon the question of preponderance of benefits or injuries.

It was asserted many years ago that before the S. S. White Company had their first flexible cable, foot power dental engine ready for sale, $30,000 had been expended in developing and perfecting it. (Probably this included the purchase of patents.) Would any manufacturer expend such an amount of time and money in the effort to make an instrument or machine as perfect as possible if the first half dozen that were sold could be taken apart and each item duplicated in the shops of as many rival supply houses, each of whom could in a month or two, and at a merely trifling initial expense, put on the market a duplicate machine, inferior, probably, in perfection of workmanship, but cheap enough to spoil the market and leave no hope of profit to the originator of it. Again it often takes time and much money to advertise and introduce a new thing, until a steady demand for it is created, and this is often the case even though the article has great merit and usefulness. Who is going to take the trouble and expense to open such a market if outsiders can immediately come in and supply it with a duplicate article?

The other side of the question is the danger, or the possibility, that the profession, and the public through us, may be exploited and oppressed by means of a patent monopoly upon some matter so important that the welfare of the public requires it should be available for use by all members of the profession. As a matter of fact, I am not aware that the dental profession has ever been exploited in this way to any appreciable extent except in one instance: that of the Dental Vulcanite Company. In that case I believe the principal beneficiaries of that oppressive tax upon us were not dentists at all, at any rate they were not the men to whom we were indebted for the development or introduction to the profession generally of the application of vulcanite rubber in dental prosthesis. If there had been any rule of ethics in the dental profession similar to that of the medical profession the men of the Goodyear Dental Vulcanite Company would have been outside of it. It can be pretty safely assumed also that any man or group of men who would be willing to exploit the profession by the exaction of an annual license of from $50 to $200 collected from every practitioner (the number who escaped the Vulcanite Co. were very few indeed) would be willing, for the amount of money they would get, to relinquish their standing and fellowship in the profession.

It would seem to me, therefore, that a rule like that of the medical profession would deprive us of most of the beneficial uses of the patent laws without giving us any appreciable amount of protection against the abuses that are possible under those laws.

The Crown and Bridge Company attempted to exploit the profession in a manner similar to that successfullly carried out by the Vulcanite Co. and there is not a shadow of doubt they would have succeeded to even a greater extent, (because the profession were at the time more numerous, and able under sufficient pressure to pay larger license fees,) except for Dr. J. N. Crouse, and the support given him by the members of the Dental Protective Association. This support was not by any means spontaneous; to obtain it probably required more time and effort than was required to conduct the defence of the members who were attacked in the courts, and would not have proved enough in the end if the Crown Co. had not succeeded (while the Protective Association was destitute of funds) in getting one court decision in its favor. Dr. Crouse has been subjected to a great amount of adverse criticism, especially in regard to the autocratic manner in which he has managed the affairs and the funds of the Protective Association. Most of this criticism is not only unjust but senseless. These critics seem to forget that a controversy in the courts over a patent is war, and must be conducted by a general in chief who has autocratic power over the money and the affairs of the Association and must be allowed to keep his own counsel. If the affairs of the Protective Association has been conducted in a manner similar to the business affairs of the State Dental Society, or with the publicity required in the administration of estates, the futility of the Protective Association would have been so complete as to have been ridiculous. As a matter of fact Dr. Crouse has given a perfectly satisfactory and dependable accounting, afterwards.

The case of Dr. Taggart is in some respects peculiar. There is pretty nearly unanimous belief that the profession owes to him the development and introduction of the present methods of casting as applied to inlays, crowns, etc. It is also apparent that these methods are so useful that their adoption is about as nearly universal as is the use of vulcanite in dental prosthesis, or the use of some of the forms of crowns and bridges. It is an epoch-making invention, and few if any dentists anywhere will conduct their practice in the future in the same way that they have in the past. Dr. Taggart's case is unique also in the exceedingly important respect that for the first time in the history of the profession, so far as I know, the profession has the opportunity of rewarding the right man, and this is due to the fact, that for three or four years, during which the indifference, criticism and accusations that he intended to oppress and rob the profession have grieved, discouraged and angered him, he has made heroic efforts and sacrifices in order to keep control of his patents and be able to prevent people to whom the profession owes nothing from getting the power to take many millions of dollars from us if the Taggart patents are sustained by the courts. There have been men willing to take their chances on the validity of the patents and to make Dr. Taggart wealthy in exchange for a controlling interest in their ownership.

The agreement with the Protective Association goes to the extreme of liberality and generosity. It offers the use of all of Dr. Taggart's inventions during the seventeen years' duration of his patents for a total sum less than one half that collected every year by the Dental Vulcanite Company from every man who vulcanized any rubber, and out of this amount two-fifths will be used to establish a fund sufficient to constitute a permanent defence for the profession against unjust and unlawful demands upon us.

THE SCIENTIFIC CASTING OF GOLD.*

BY W. H. TAGGART, D. D. S., CHICAGO.

It hardly seems possible that it has been four years since I first came before you and delivered to you my message.

And tonight I come again and ask in all seriousness: Did you heed that message? The fact that some thirty thousand in the United States are today casting most of their fillings only shows that the underlying principles of this process must have been right and of unusual strength, or else they would have been discarded long ago, owing to the careless and unscientific manner in which these principles have been used.

The subject of my paper tonight is "Scientific Casting of Gold," and while the title sounds big and roomy, and apparently would permit of endless writing, as a fact my message will be brief and simple. It takes but a short time to state the facts and explain the basic principles of any mechanical process, but the amount of time consumed in trying to find some principles or theories to explain certain conditions is considerable.

The conception of an idea that a certain thing is needed in a business, which has been lying dormant for years, is the very basis of invention, but as it cannot be delivered at so much a pound, some are not inclined to appreciate the scientific merit of the complete idea, but will introduce a crude conception of this idea into their business, reap a big reward themselves, and then condemn the one who gave them the information.

I say this in all earnestness. because thousands today are casting, and yet are not doing it according to any scientific law.

I do not believe there ought to be a separate car on the surface lines for those who do not think as I do, but I feel that when a new idea is presented, and has merit enough to be adopted in our daily practice, it should at least be used according to directions until those directions are proven to be erroneous.

Scientists in other lines than ours invariably follow the minutest detail of the technic of the one making the discovery and then draw their own conclusions. If they do not follow thus closely what has been presented to them, they certainly are not scientists in a true sense.

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*Read before the Illinois State Dental Society, Peoria, Ill., May, 1911; also before the Chicago Dental Society, April, 1911.

What right would anyone have to say that our Miller or our Black were wrong in their theories of caries, if he did not carefully follow the details which led up to these theories?

With these few preliminary remarks, I will try to correct some of the errors which have crept into the casting of gold as used for dental purposes.

A good definition of science is: "Knowledge gained and verified by exact observation and correct thinking." Scientific—"pertaining to science."

The different heads into which the subject of scientific casting of gold has been divided are: Preparation of cavity; wax and its treatment; investments and their treatment; flasking; gold and its proper manipulation and mechanism for accomplishing results.

CAVITY PREPARATION FOR INLAYS.

The preparation of the cavity will not receive any extended consideration, but it is coming to be recognized that the same general rules laid down by Dr. Black for the preparation of cavities in which gold foil is to be placed are equally good rules to follow where cast inlays are to be used.

During the first two years of the cast inlay period, when the gold foil enthusiast was having his pins knocked from under him and having to formulate objections to the new idea, there was considerable talk about the amount of tooth structure which had to be sacrificed in properly preparing a cavity for a casting but as time has passed and the cast inlay is recognized as orthodox, these objections have gradually faded, and are now only used by those who pride themselves on the fact that they never try anything new.

I had occasion a short time ago to see an enlarged model of fourteen teeth, with twenty cavities prepared, all according to Black's plans. This model is used by professors of operative dentistry to teach the students the proper preparation of cavities for gold foil fillings, and, aside from the undercutting in these cavities, which is not desirable for cast work, there was not a cavity preparation that would not have been correct for a cast filling.

In my relations with dentists who have adopted the cast work, I find it is very hard for some to adopt new ideas in regard to the tools to be used in humanely preparing cavities. You will probably remember that at the time when this subject was presented to you I said that any cavity to be prepared for a cast inlay could be better and more humanely done by the use of stone instead of steel tools, and I have had no occasion to change this idea, as fully ninety-five per cent of cavities are prepared in my office in this way. The use of stones prevents one very serious condition which is apt to happen when burs are used, and that is that unconsciously one is apt to make slight undercuts with steel tools which are hidden hindrances to the proper removal of the wax.

WAX AND ITS TREATMENT.

Have you seriously considered how absolutely essential the proper wax pattern is in the making of an inlay? To be scientifically correct, a wax must be of such a nature as to be sluggish in its movement, and which, at the temperature of the mouth will absolutely break before it will bend. Without this quality there is no certainty that it has not become distorted, especially in complicated cavities.

With soft waxes and the use of cold water one can get fairly good results in ordinary cavities, but where there are any complicatoins, such as we find in M. O. D. (mesial-occlusal-distal) cavities the wax, as soon as the cold water is withdrawn, almost immediately resumes the temperature of the mouth, and while it may be easily withdrawn from the cavity, there is no telling to what extent it may have been bent, and this condition will not give you a high percentage of successes in just the places which should be the most accurately filled.

I made 1,150 different mixtures of waxes and gums and did not succeed in having continuously successful results until a wax was obtained which possessed the foregoing properties, but others seemed to think it required too much effort to get it to a workable condition. From the start it was found that the uniform plasticity throughout the whole mass could best be obtained by warming in hot water, but in trying to do this in a hurry the surface was made softer than the internal mass; yet if sufficient time was used to allow the whole mass to be thoroughly heated throughout, excellent results were obtained. To surmount the problem of heating the wax properly, I have devised an automatic electric heater, which will now be shown to you. When the instrument is set to work so as to give you the proper degree of plasticity, it will always duplicate this temperature, but it must be allowed time to arrive at this correct temperature, and by making it automatic this can be accomplished to a nicety. As soon as I commence to prepare the cavity, the heater is started, and this gives ample time for the wax to be thoroughly warmed throughout its mass, so that when the cavity is finished the wax is ready to be used, with no loss of time, with annoying conditions removed, and with continuously duplicated and gratifying results. This instrument has certainly brought the moulding of the wax pattern down to practically a scientific basis.

This instrument (Fig. 1) which I call an automatic wax warmer, has as a heating element a 16-candle-power lamp, with a carbon filament. The carbon filament is being abandoned for lighting purposes, because it furnishes more heat than light. The tungsten filament furnishes more light than it does heat. For that reason I have used the carbon filament to furnish the heat.*

The principle on which it works is this: We have here a glass disc, which we can turn to one side in order to place our wax on it. On account of the heat all coming from one direction, a metal disc or surface that was flat would receive heat upon its surface, and the under surface of the wax would be cool. I found that one of these disc glasses is thin enough so that as the heat strikes it, it is reflected back so that the under side of the wax is warmed as well as the upper. I have had wax on here for fifty-six hours at a time, and when I examined it, it was plastic in its mass, and no more heated on the upper than on the lower side.

The electric heating apparatus was hard to control automatically if the current were allowed to go in a continuous path but by adopting the principle I have used here, of having the heat all on or or all off, it permits the intermittent heating of a thermostat. It heats the thermostat, and as soon as it gets a little too warm it breaks the electric circuit. As soon as the electric circuit is broken the thermostat begins to cool down, and throws the current into the lamp again. It works by excessive heat, and it shows there is not a one-hundredth degree of difference in temperature between the surface on one side or the other. Sometimes it will flash 50 or 60 times in a minute; sometimes slower. The reason is, it is a very sensitive test of the voltage that is passing through the wire. You have often noticed that when the lights would go up high it would make your room light enough. When the current is at a high voltage the lamp is heated more, and that works the thermostat quicker, and as soon as it is worked quicker it immediately drops down. The dancing you see is worked by that voltage.

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*The illustrations for this paper were not delivered to us.

The wax is placed on this glass disc and the even temperature throughout the whole mass has a great deal more to do with the correct moulding of wax in a tooth cavity than you think. It is peculiar, but a soft wobbly condition of the surface of wax will invariably make it shrink from the cavity walls; whereas if you have a wax of uniform texture, it will move to its place in an exact way, and there will be no change in form when it cools off.

INVESTMENTS FOR CAST INLAYS.

The next subject is that of investments. This problem seems to have called more loudly for help than even the wax problem did, and justly so; as after the pattern, which must be accurate, the mould must be scientifically correct. A great many of the faulty adaptations, aside from those caused by distorted patterns, come from improper investments, or good investments improperly handled.

One writer has given you several pages of meaningless statistics about investments, and for the life of me I have not been able to fathom their meaning, because if investments are tested under conditions which should never be allowed, no number of pages of statistics can make me think that this would be a scientific treatment of the subject. For instance, temperatures of 1,000 degrees are mentioned, when, as a matter of fact, such a temperature is so far beyond the requirements that the article loses weight as a scientific treatise. The temperature required in order to do scientific casting should never be higher than just enough to burn out the wax. Anything beyond this is absolutely harmful and brings the investment to a temperature where the ingredients themselves are burned, and give off gases which are very objectionable to a mould.

The temperature in the flask at which casting should be done has not been thoroughly understood. A hot flask is an expanded flask, and an expanded flask means an expanded hole inside, and an expanded hole means a misfit casting.

I think one of the most scientific reasons why I have such continuous satisfactory accuracy of fits of my cavities lies in the fact, that I never cast in a mould hotter than the temperature of the room. In other words, always allow the flask to become cold. This gives you two conditions, both important. One is, the mould is not distorted, and the other is that the metal flask is allowed to come back to a normal temperature, hugs the investment tighter and gives it a support which is very helpful in resisting the pressure from within.

Most of the handling of investment is done in very unscientific way; as a rule, there are no two times when the conditions are made the same. You should make experiments in sufficient number to determine the correct quantities of water and powder, and then invariably duplicate these proportions, else how are you to get uniform results? There must be some proportion of water and powder in any investment, good or bad, which is the correct one for best results with that particular investment, and when this is determined you should invariably duplicate it. This can only be done by weighing the ingredients and not by measuring, as it is impossible to always get the same quantity of powder in a vessel unless it is weighed. A little pressure or tapping will alter the quantity away beyond reason. From the start I have insisted on exact weighing of both water and powder, and this accounts again for a high percentage of uniform results in my work. A rule of thumb method will never accomplish scientific casting. A little water and a little powder, and if too thick a little more water; and if this time it is too thin, then a little more powder, will never give you two mixtures alike, and if the consistency of your mould is not twice alike, you certainly cannot duplicate your casting results.

A good investment should be so compounded as to make it possible to pour it into the flask, and have plenty of time to know that the wax is thoroughly surrounded. A thin investment also allows the contained air more easily to escape. When I was using a thick investment and manipulating it hurriedly, as was necessary, I would find pimples on the gold far in excess of what I thought was caused by the contained air in the plaster ingredients, and I came to the conclusion that gases must be evolved after the investment was in its place in the flask. By making a proper mixture of ingredients, it now allows me to manipulate the material so that any contained air or gases are allowed to escape before the flask is filled.

In order to easily weigh and mix investments so as to obtain uniform results, similar each time, I have devised several instruments and I think you will admit that continuously uniform results can be easily obtained and scientific casting be given a big boost.

INVESTMENT MIXER.

This apparatus was among my first instruments for mixing investments. (Here Dr. Taggart exhibited a weighing and mixing device.) It is an open tube, and a movable other end to the lever. In the center we have the fulcrum. Here we have a movable weight. Imagine the fulcrum here (indicating). On top of it I have a spirit level. Without that it would be impossible to tell with the eye whether this end or that end was too low. If either condition existed you would not get correct proportions of water and powder. As soon as the spirit level comes to a center, that is the correct amount.

This is a movable weight between two nuts. When it is here to the left there is a certain amount of powder, and here to the right there is a certain amount of liquid. I will give you a mix of this investment and show you how to do it.

This spirit level shows the weighing beam is level. I now move this weight over to the right side. That brings it out of balance. By squirting water in here, and bringing it back to balance, we have the correct quantity of water.

Those two ingredients are in there in the proper proportions, and those conditions can be duplicated every time, and after you have found the proper proportions you can see the advantage. It is liquid enough to shake it and get the ingredients properly mixed.

The element of time comes in. These gases seem to be evolved from the chemical action of the water on the plaster, hence the liberation of contained air and gases. This plaster taking up the water, whatever gases or contained air there may be in the powder or water, are given a chance to be eliminated by rolling it from one end of the tube to the other and giving it a slight tap occasionally. As you roll it in this way the gases come to the surface. They have a great attraction for the water, but a little tap or jar will break them loose, and you commence over again and give this rotary motion. Three or four minutes of time can be consumed in this way, and the investment is still in a workable condition.

When it is ready, the inlay which is on the crucible former is carefully painted over with a small camel's hair brush, so there is no air pocket concealed in any angle; the investment is then poured into the flask. It is in a liquid condition, and is absolutely free from all the gases and bubbles that have formerly annoyed us, and which invariably caused the little nodules of gold on the surface of a filling. You can easily see how a thick investment could confine this air, and the air, having some buoyancy, will rise somewhat, but it has not enough buoyancy to come out, especially when it strikes the under side of the inlay. Any jarring of the flask at this time is the worse thing you can do, because the colonies of small bubbles of air and gases all congregate and cling to the under side of the wax pattern. The investment stays thin like this for ten or eleven minutes, and you say to yourself it is so liquid it never will set; you turn aside for a moment and forget it, and when you look again it is set. It changes rapidly from a liquid condition to a solid condition. At the end of twenty minutes it is ready, even when mixed in this liquid form, to place on the fire.

In order to mix these ingredients properly I felt as though this instrument was rather crude, and that a more accurate and automatic instrument could be made, which I will now show you (fig. 2).

Here now is the vessel in which I mix these ingredients. Here is a spring that allows this rod to be shortened. It was put in a little hole in that side, and one on this side. In the other device there was a chance to change the length of the lever in the scale beam. In other words, in dropping the powder in here the bulk of it would pile up on one side. That would make the beam here longer, and you would not get a true measurement. If you could get it always absolutely in the center it would weigh properly. The liquid takes care of itself. I made a movable joint in this, so when the powder is put in, it tips it over and brings the center of gravity below the point of support.

This instrument is handled in this way: I hang it on the fulcrum. This arm has a spirit level in the top, the same as the other. This weight is pushed to one side, the powder is placed carefully; you must remember a little too much powder or too little water will make it of such a consistency that it will not roll in the container, but will become sluggish and mushy. We now move this weight to the other side of the scale beam. Water is poured in until it comes to a balance again. This spring is removed and the lid placed on and it is shaken so as to get the ingredients mixed. You notice the arm leading off from it is placed at an angle. This is placed on the motor, and we have a cog motion here which reduces the speed of the container to about sixty revolutions a minute. This mechanism is automatic. In my work I allow five minutes for the mixing. Five minutes is better than three minutes, because every chance is given the gases to escape in this time, and with five minutes to spare you can be doing other work. I take the wax inlay after it has been placed on the sprue wire, start this automatic instrument and then do the artistic carving and finish up the wax filling; and often I have plenty of time to do all the carving that is necessary while this mixing of investment is going on. By setting the clock at five minutes the mechanism revolves. You notice that little jerking motion each time. That jar is to burst the air bubbles, or gas bubbles. You can see how that being switched around—with all due respect to the vaudeville show from Brooklyn this evening—there is a "hoocheecoochee" movement here that is very conducive to mixing. The bell rings, and you notice the machine stops automatically. The automatic device for stopping that is nothing more than a snap switch placed on the alarm end of the clock so that the alarm movement is the one that throws off the switch.

Now the material is ready to be poured into the flask. It is of a much better consistency even in the few minutes I have just mixed it—free from air bubbles—than any way I can mix it. If it is jarred in a more violent manner one is apt to pump more air into it.

As you gave applause to the Spanish dancers tonight, I can best show you that peculiar movement I spoke of, which you were all so pleased with. By allowing the disc to revolve alone you will notice the angle at which the container is set is continually changing, which keeps the liquid investment constantly changing its place and spreads it in a thin layer on the inside, and the jar bursts the gas bubbles.

Here is another automatic mixer (fig. 3) that can be connected with any of the lathe motors. This is a Ritter. This machine works on the same principle as the other. As the mixing goes on for the requisite number of minutes the clock movement goes along, and you get an alarm, which is loud enough to draw your attention to the fact that your work is ready, is better than the assistance of anyone—even yourself—in the mixing. It enables you to do the work identically every time.

METHOD OF REMOVING WAX FROM MOULD.

Our case is now flasked, and please tell me how many times you have burned out your wax twice alike? This being a process which takes considerable time (it not being considered necessary to watch it), one is quite apt to overheat and spoil the mould by forgetting it, sometimes leaving it on the flame for hours. If continually duplicating conditions, as I have previously outlined, is of any importance in scientific casting, it is equally so in the simple burning of the wax, and I have devised a burner for this purpose, and as it is done automatically you can see what a time saver it is.

AUTOMATIC APPARATUS FOR BURNING OUT THE WAX.

In this instrument (fig. 4), I have three different degrees of flame. If you are very careful with the first low heat you put on, and give it plenty of time for the water to be evaporated out of the investment, afterwards you can put on as much heat as you want and as fast as you like.

This low heat does not mean anything unless it is confined. The swaying of the flame by draughts would mean you would get one temperature at one time, and another at another. I put this tube over as a chimney to make the flame come to the top always and not be swayed.

On the back part of another alarm clock we have a disc which has three steps and a valve of special construction. This level first rests on the first step, and as you set it for five minutes the clock moves at that low heat, and then drops on to the step next higher. That temperature is kept up for another five minutes, which precludes the possibility of any further moisture which might suddenly burst and destroy the investment. As time goes on—another five minutes—it drops off, and it goes up another step. That, we will say, is the third and highest temperature. At the end of that time another five minutes having elapsed, the switch goes off and the flame goes out.

GOLD FOR CASTING.

The next phase of the subject of scientific casting will be about the gold itself. If there is any one thing more than another which has hindered the scientific casting of inlays, it has been the eagerness of the dentist to use all of the old refuse gold about the office, and sometimes, in case of poor collections, I have known them to add just a small part (they say) of sister Mary's near-gold bracelet, which she purchased with trading stamps. Let us take up the question of how much is saved on an average-sized filling, say as large as one and a half pennyweights; you would save ten cents if you used pure gold scrap. If you used 22 karat scrap, you would save fourteen cents, and on 20 karat scrap you would save about sixteen cents on the filling. For a filling of this size you ought not to get less than ten dollars, nor more than a hundred. Now, let us see how this figures as to cost. If you have failures on account of using bad gold on a 22 karat scrap filling at ten dollars each, you would have to make seventy-one and three-sevenths fillings, and on the one hundred dollar filling you would have to make seven hundred and fourteen and two-sevenths fillings to come out even on that one failure. As real ethical, scientific, artistic, humanitarian, and opposed-to-patents dentists, can you afford to prostitute yourselves to this extent?

So much for the commercial side. Now, as to the scientific aspect of knowledge gained and verified by exact observation and correct thinking.

Dental golds are alloyed with either silver or copper, and in case of solders, zinc is used. It is a well-known fact that silver and copper, or any baser metals, readily absorb gases when melted, and these gases, principally oxygen, form oxides of the metal, and on cooling evolve these gases, which causes the blow-holes, or porous case; and the elimination of these absorbed gases also causes the sputtering you have noticed in alloyed gold, and which does not occur when pure gold is used, as pure gold when melted does not absorb gases; consequently, when cooled from the melted condition, it has no gases to squeeze out, and it is necessarily exceedingly homogeneous.

While we have always known that platinum is non-oxidizable, and might have properties helpful to gold, it must be borne in mind that platinum at these high temperatures has a very great affinity for silicon, and a piece of pure platinum melted in a crucible, with but a small portion of silica, will become very brittle, which possibly accounts for the brittleness of clasp gold when cast, as clasp gold is supposed to be alloyed with platinum.

All of these conditions I have found out by practical experience, and have had them verified by expert metallurgists. What do these experiments mean? They mean that if you wish to make cast inlay fillings in a truly scientific manner you must use pure gold. There are a great number of clinical reasons for doing this, which will possibly be brought out in discussion.

What are we to do where we must have more strength, as in bridge spans, plates, etc., etc.? Choose the lesser of the two evils and use coin gold, which is alloyed with copper, and if not melted over and over again the gases do not injure its ultimate structure as they do silver, zinc and platinum.

CASTING AGAINST PICK-UPS.

I wish to tell you one more principle about gold, and casting it to other pieces of gold which are in the flask.

Without any experience except that gained by blow-pipe work, the first thought which seems to come to dentists when they wish to cast against gold is to bring both the golds to as near the same temperature as possible. This process, gentlemen, is absolutely defeating the object sought. Why?

In bringing the flask and its contents up to a bright red heat you bring the enclosed metal to a temperature at which it oxidizes, and, having no means of deoxidizing this surface, you do not get as perfect a union when the melted gold is thrown in as you will if you heat the case up to a temperature just sufficient to burn out the wax. And this temperature does not absolutely burn all the carbon off the enclosed gold, and as carbon is one of the very best deoxidizers, you now have your gold in the very best condition to be welded to other gold. Now, the thing to do, in order to cast to this gold, is to bring your melted metal up to an excessive temperature, and you will cast in a scientific manner.

This subject is so fascinating, and there are so many ramifications, it is almost impossible to live up to a resolution I made when a mere boy, and that was, that if I ever became a preacher I would not preach over ten minutes.

PRESSURE.

Only one more thought and I am through with the subject of scientific casting. This thought relates to pressure used in casting. I think you will all admit that there can be a pressure too low to do accurate casting, and also that there may be a pressure too high, and, admitting this, can you not see that there must be an intermediate pressure which is just right, and which can only be obtained by automatic controlling mechanism?

A FEW RANDOM THOUGHTS.

RANGING ONLY FROM DAN TO BEERSHEBA AND TOUCHING ON THE CALL OF THE WILD, BUSINESS, ETHICS AND SPECTRES, SCARE CROWS AND THINGS.*

BY DR. CHAS. B. ROHLAND, ALTON, ILL.

INTRODUCTION TO THE PAPER OF DR. ROHLAND.

BY DR. C. N. JOHNSON.

It is always well that the influence of good men be extended as far as possible beyond their living presence. Somehow the written words of a man who has passed away appeal to us in a peculiar manner, and if he has written anything good and then gone on to the great beyond, leaving this as his final utterance, we cannot fail to be impressed by it.

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*Read before the Illinois State Dental Society, Peoria, May, 1911.

Such was the case with Dr. Charles B. Rohland, the man whose cheery presence at the Illinois State Dental Society during his professional life constituted one of the most interesting features of our annual meetings, and whose taking away has left a void in our midst which we can never hope to have perfectly filled. It is unnecessary for me on this occasion to give my personal impressions of Dr. Rohland's life and character. I have already done this in a public way, and must leave further comment to the committee on Necrology. But with reference to the present paper it would seem appropriate for me to call your attention to a remarkable evidence of the mental breadth of the man as exemplified in this document. The paper was written, I am told, a short time before his death, in fact, it is practically the last written utterance of our beloved friend. It had never even been revised, and is probably not quite in the polished form in which its author was accustomed to present his papers. But it seemed to me almost sacrilegious to alter it in any material sense, and I have accordingly made the fewest possible changes consistent with clearness of ideas.

It will thus be seen when the paper is read that Dr. Rohland, knowing as he must that his days were numbered, had the breadth to ignore the conditions which confronted him and treated his subject in the same light and cheery manner in which he was ever wont to bring his ideas before the world. He is a great man who can do this, to sink his personality out of sight and view things as they actually are. And in treating most subjects it helps so much to see the bright and witty side, in which delightful quality Dr. Rohland was a past master. I have never known a man who could inject so much pure wit into his articles and at the same time avoid the danger of a personal sting. He had the keenest insight into men and events, but he never used his powers to hurl the shaft of sarcasm. He was gentle, kindly, keen, and above all he was intellectual. He was our friend, and in this light I ask the society to listen to his paper as much as possible in the spirit in which they would if he were here to read it.

I had been working steadily for over an hour. My patient was a charming young woman, bright, willful, somewhat restive under restraint or discomfort, but in the main a good patient, who would not allow her feelings to interfere with the requirements of the situation. She was a pet of mine, and I think she was reasonably fond of me—at times—and our relations were in the main so friendly, that she felt at perfect liberty to relieve the tedium of the dental chair, by saying things, calculated to provoke an exchange of "airy persiflage," in which I usually came out second best.

On this occasion, the operation happened to be very tedious and trying to both of us, and had made such drafts on us, that the tension was nearing the breaking point. The atmosphere was charged with electricity and we were both beginning to see red. You've all been there and will recognize the description. Just such a situation when it doesn't need mental telepathy to tell you that the point has been reached where your patient would give a farm to slap you "good and hard," and where you'd give another if she only would, so that you would have a decent excuse, to let go "all holts," quit being a gentleman for just about three minutes, tear your hair and indulge yourself in the most lurid language at your command. Without such relief coming pretty quick you just know the safety valve will blow off.

Taking advantage of a lull in the work, she broke her long enforced silence, and said:

"Doctor, I want to ask you something. What ever induced you to select dentistry for your life work?"

"I didn't," I replied.

She looked puzzled, and asked, "What do you mean? Who did then, and why?"

"Well," I answered, after a pause, "I think it must have been Providence. You see Providence has many mysterious purposes, and often selects some humble instrument to carry them out. I think I must have been selected to chasten provoking young women who ask impertinent questions! and dentistry was only the whereby."

"Don't be mean," she pouted. "I know I have been just horrid this afternoon—at least I have felt so! But you can take it from me, that if Providence selected you as a chastener, he made no mistake, and you can call on me for a certificate to that effect any old time you may want to prove that you've made good in your mission."

Of course this was one one me. "Thank you!" I said. "Yes, I think myself I have done pretty well. I don't see how I could have done better in your case, unless I had married you, which of course wasn't on the cards, as fortunately I was born too early!"

"Fortunately! Fortunately." She boiled over.

"Oh, of course," I hastily interrupted, "for yourself—for yourself!"

"Well it wouldn't have been in the cards even if you hadn't been born too early!" she flashed back at me. "And don't you worry about me, Mister Doctor. When I get married, if there is any chastening to be done, my husband won't have the monopoly of it!" And her set lips and an ominous flash in her eyes disturbed my poise just enough that I hastily replied that I quite agreed wtih her. My assurance, however, seemed to have been just a bit too hearty, for in answer she gave me a look that made me feel for a minute that perhaps I hadn't said just the right thing after all.

But she returned to the charge again and said: "I don't intend to let you get away from the main question! I want to know how you happened to go into dentistry. Much of the work is fearfully disagreeable, you must admit. Nerve racking to a degree at both ends of the instrument, so much so that your patients, much as they may love you outside the office, just fear and oftimes hate you inside—and you certainly cannot like that, and I know you don't find pleasure in hurting people and making them uncomfortable—or, do you?"

"No," I answered, "at least only a few of them."

She gave me a questioning look of suspicion, as though possibly she wondered whether there might be something personal in that, but persisted: "Well! Now why?"

"Well," I replied, "I suppose I didn't quite realize what I was getting into. I don't see how I could until I had tried it."

"You must have had some idea of it," she continued. "You must have been in the dental chair yourself before you went into dentistry, which I'll venture to say you didn't enjoy any better than I have enjoyed this afternoon. Why not select some more agreeable vocation? They were all open to you. You once told me you rather liked teaching and spoke of the advantages of a position in a good faculty. Why didn't you make that your profession? You know about it from experience, and while it isn't all roses and sunshine, it is certainly just as useful and respectable, and certainly is not nearly so trying as dentistry, any way you are conscious that you are not making a disagreeable nuisance of yourself to any one that has to do with you!"

"Yes!" I admitted. "I suppose the work would have suited me better, but there's no money in it. It didn't pay enough. There isn't—"

"Oh, I see," she interrupted. "You went into this then moved simply by your greed for the almighty dollar. You thought there was 'big money' in it, but you took no thought of what you had to go through to make it, did you? Well did it pay? It should have, considering what this work must take out of you. You really ought to be rolling in wealth by this time, though I must confess, if you are, you are concealing the evidences of it mighty well!"

This thrust touched me "on the raw," and made me hot, for my office coat, although it had just come out of the laundry, really was on its last legs, and had shrunk to about two sizes too small for me, and my winter suit was clamoring loudly for the gentle springtime to hurry up so it could be relieved from further service. So I resorted to the only weapon left me. "Open your mouth!" I grunted, and I savagely proceeded to stuff her mouth full of cotton rolls.

"Ought to be rolling in wealth, ought I! But you don't see any evidence of it? You didn't, eh! Well you will. Just you wait until you get your bill, you'll think you are mistaken."

My patient submitted quietly and perforce pursued her inquiries no farther, but the twinkle in her eye and her evident amusement and satisfaction showed how she enjoyed having gotten me "on the hip" as it were, and that she felt better.

"I didn't"—because this not altogether a fanciful conversation—awoke in me a little suggestion of regret and discontent and set me to speculating as to where I might have been socially, financially, physically and professionally had my lines been cast in any of the other professions—and I kept repeating the question to myself. Why did I go into dentistry? Why does any one select dentistry as a vocation, when so many other kindred avenues are open, requiring no more equipment, no more study, no more hard work, no more gray matter, and only here and there more vital responsibilities, but if the dollar is the motive, giving so much more in return for the expenditure?

I turn the question over to you. What was your motive, and without meaning to be too disagreeable, were your highest expectations realized?

I think it may be said, without fear of contradiction, that the average prospective student, when he is canvassing the question of his future life work, and is considering dentistry, sees nothing in it but a more or less easy means of making a living. To him, as my patient put it, there is no other consideration but the almighty dollar. To him, if he thinks at all, it presents practically only the aspect of a trade, and the dentist is merely a high-grade mechanic, who wears Sunday clothes every day in the week, has a more or less sumptuously furnished office, and is called, Doctor, which to a great many is quite a consideration.

As to the character of the work that he will be called on to do, the years of painful preparation for it, its demands upon him physically, mentally and morally, the discomforts incident to his close personal relations with the weak, the fretful and the nervous, the responsibilities, the illimitable patience required, and then the meager rewards financially as compared with similar services in other branches,—of all these things he is as ignorant as a Hottentot is of a problem in Euclid. This misapprehension is due partly to the combined ignorance and optimism of youth, and also the two-fold character of our calling.

Perhaps here too it is Mercy that holds the veil that hides the future, for if she did not, there might not be candidates enough to supply the demand.

That there is something beyond the mere mechanics of his calling, that in going into dentistry he will be assuming the duties, responsibilities, and obligations that are inherent to a profession, never occurs to him, and if it did, he wouldn't know what they are. Thinking only of the dollars to be made, he usually has exaggerated ideas of the ease with which they can be gathered. He sees the dentist well dressed, apparently busy, and hears the enormous size of his fees spoken of with bated breath much as a plumber's might be. He sees only the glamour in front of the stage, and has not yet come to a realization of the sordid realities back of it. The answer then to the query must be, I fear, in the majority of cases, that the motives on the whole are entirely commercial.

Dentistry as generally practiced is not only a profession, but also a mechanical employment, in other words a trade. So largely does mere mechanics enter into general dentistry, that mechanical manipulating, the handling of tools, the construction of appliances and substitutes, all that goes with the exercise of a trade, takes up the major part of his time, so that the prospective student may well be pardoned if he fails to see beyond the first requirements.

This two-fold aspect of dentistry has been recognized for a long time, and that the mechanical exactions of ordinary practice are a drag on the growth of the dentist professionally has also been recognized. Forty years ago, our own Doctor Black read a paper before this Society on "Dental Legislation and Plate Work." This paper was part of the discussion on Dr. Cushing's famous paper on "Dental Legislation," which began the long fight for the dental law in this state. In this paper Dr. Black drew the line sharply and clearly between the mechanical and professional requirements of our calling, and argued, that as dental legal enactments are solely for the "prevention of injury to the people by persons assuming to be dentists" that these enactments should not be made to apply to purely mechanical dentists.

For, as he rightly argued, "If a person gets a set of teeth from a mountebank and they do not answer he is injured to that amount in dollars. But if a quack extracts his incisors needlessly, it is a physical injury which dollars and cents can in no wise repay, nor time heal."

After enumerating some of the operations that are partly professional, the bungling performance of which would result in irreparable physical injury, he proceeded to argue, that "To these then —the greatest evils—the law should apply, and not to the mere insertion of artificial teeth, which does not necessarily produce physical injury more than the purchase from the dry goods dealer of an imperfect and useless fabric." And he might have added—or a badly fitting pair of shoes from the shoemaker.

He further said: "The passage and enforcement of such a law as this may have the effect to divide what is now known as dentistry, into two distinct branches; which certainly is an object worthy of some trouble to accomplish."

Did you ever?—Mind you this was written 40 years ago when this man Black was still, so to speak, a mere kid!

Have any of you ever read any of his articles, written no matter how long ago, that weren't full of common sense, and contained suggestions just as applicable now as then and made you wonder in the light of subsequent events how he could have written for the future so accurately? Why! some of us have to struggle for years and years before we can acquire even a little sense, and others never get any, while here seems to be a man who was just born with it!

Why they do say—(of course I don't want this to go any farther, because it was told me in strict confidence, and I swore on a stack of bibles I'd never give it away)—they do say, that on that interesting occasion the little Black's mental processes began working at once so vigorously and effectively that by the time the doctor in charge got through and was able to give him some attention, this little Black, this uncanny little devil, began to tell him how crude his methods were, and to show him a much more scientific way of handling such cases.

The old Family Doctor they say was not so much astonished at this evidence of infantile precocity, for he knew the family of old, but the mature wisdom and the original character of his remarks so astounded him that he could only gasp, "Oh you Kid!" "Oh you Kid" which was the origin of the expression that has been in such vogue lately! Why they called him Greene after such an exhibition passes my understanding.

And they do say, that the observations little Black made at that time are accepted as authority by the medical profession to this day. Of course you understand, I can't vouch for the truth of this, because I wasn't there. My troubles didn't begin until some years later. However, I don't hesitate to say I believe it. Since the Chicago banquet, I am prepared to believe anything about that man Black!

However, his suggestions were not adopted, and the law as urged and finally adopted covered both branches. The advancement of dentistry since then has been phenomenal, but who shall say that its progress would not have been even still greater, its standing professionally still higher, its triumphs, both as an art and a science still more brilliant, had the course suggested by Black been followed.

Admitting then that the motives influencing the prospective student are in most cases commercial, and that the professional instincts are either absent entirely or at least dormant, nevertheless it is a fact, that I believe will be corroborated by most experienced educators, that the very large majority of those just entering the profession are honestly desirous of being ethical. The test comes later on.

The large majority of these self same students become truly professional by the time they finish their course. This must be the result entirely of their environment.

That there is a growing tendency among the best men to turn over the purely mechanical details of their work to the mechanical dentist is evident I think by the growth in numbers of the Dental Laboratories.

As they go along they begin to come to an appreciation of the higher phases of their adopted vocation. They develop an ambition to be something more than mere mechanics. They begin to see farther into their calling. They aspire to be really professional and to be fit to associate with the best in the professions. They study and are influenced by the precept and example of those to whom they look for instruction.

The student that comes out of college has very different ideas and aspirations from the student that went into it, and I think that the fact that this is so speaks volumes for the character and influence of the men connected with our educational institutions. It also explains the importance of carefully excluding therefrom all who fail to measure up morally and ethically to the highest standards no matter how brilliant they may be otherwise. It is their character, their example that is the potent influence in awakening and developing the ethical instinct in the student.

I have no patience with the criticisms indulged in occasionally that our dental colleges fall far short of their duty in this respect, and in designating our whole dental educational system as appallingly imperfect and commercial. And that by reason of that, the student after leaving school is not qualified to take his stand as a professional man, and is not fit to consult with members of kindred professions, when the interests of his patients may call for it.

Unquestionably our colleges have not yet attained perfection, unquestionably too they are run on commercial lines, else they could not exist, but their failings in these directions are not appalling in degree. The character, the standing, the efficiency, the high ethical standards of the profession today as compared with that of yesterday, and as compared too with any of the other liberal professions is sufficient refutation of such charges. I think it may be truthfully said that the consensus of opinion among those who are in position to judge the character and qualifications of those entering the profession at the present day, is that the large majority are honestly desirous of being ethical.

If this estimate is correct, it augurs well for its future, for its progress and standing will be in direct proportion to the high ethical standards prevailing.

Its unparalleled progress has only been made possible by the unselfishness and moral stamina of those who have gone before and who have steadily resisted the assaults of the unethical, and so conducted themselves as to wring from an unwilling public their respect and appreciation.

As a recent writer, Dr. W. A. L. Knowles, of San Francisco, has well said, "Whatever is righteous and moral in the dental profession is due to our ethical predecessors, who have maintained standards, improved the quality of work, and made possible the fees which are necessary to maintain position and self respect. That the unethical can command living fees is due to the standard set by ethical members."

Whatever then tends to elevate and maintain these standards will tend to elevate, ennoble and advance the profession. Whatever will tend to lower these standards will debauch and degrade dentistry and cause its followers not only to lose caste in the eyes of the public, but will infect them with the virus of deterioration. Thus the importance of developing and fostering the ethical instincts in those about to enter the profession cannot be over-estimated. Upon the young men the future depends.

The commercial motive previously alluded to is the primal instinct. The professional tendencies are acquired and of later and more tender growth and need constant care and cultivation. They are the outer defences and the first to succumb to the stress of business necessities, the first to yield to the voice of the tempter.

I have said that the young man upon entering his profession is in the main imbued with proper professional instincts. He is honestly desirous of and honestly means to maintain high ethical standards, and wishes so to conduct himself that he may be classed among the strictly ethical. He aims also to win high standing among and acquire the unqualified respect and esteem of the best among his confreres. He recognizes that this will be a valuable asset in his fight for recognition, but the stumbling blocks in his way are many, and the temptations great, so that oftimes it will require all his moral strength to hold fast to his good resolutions.

His business and personal necessities, especially at the beginning when perhaps he finds himself launched into the fight, with empty pocketbook, handicapped with debt, may become so pressing, that the long limit required in building up a practice after legitimate methods, seems almost intolerable. In his eagerness for immediate results, he is open to suggestions that under easier circumstances he would spurn.

Lately there has been started what might be called a business propaganda in dentistry, and some of our journals, finding with what interest their articles on Business Methods as apllied to Dentistry were received, have made that the most important feature of their columns. Advantage has been taken of what probably is a fact, that the average professional man is a poor business man, and much has been made of that other undoubted fact, that the compensations in dentistry in the main are not adequate.

Many of these articles have been splendid—well written and undoubtedly helpful. Indeed, I am free to say that had I had the benefit of their inspiration earlier in my career instead of at this late date, I might now be touring Europe in my automobile, with some choice companions whose expenses I would be assuming, and sending the most seductive letters to the Dental Review, brim full of glowing descriptions calculated to make every one of you burst with envy, and carry pinned to the lapel of your coat one of those tin souvenir medals inscribed with that soul harrowing wail—"Ain't it hell to be poor!"

Anyway I wouldn't be here now unless I just happened to be out of coupons, and had come home to clip some more, which I am told by some of my wealthy friends has a fascination even beyond automobiling, and certainly must be much more exhilirating sport than chiseling out box cavities in sensitive teeth for nervous patients, even when they are willing to pay you all you have the nerve to ask for it and more too!

That the exercise of good sound business principles in connection with daily practice is not at all incompatible with good ethics is undeniably true. It is also undeniably true that while the strictly ethical man must always make the good of his patients his very first consideration it will be no reflection on him and he will in no wise forfeit his claim to ethical standing if he tries to so serve them that he may at the same time reap his share of the benefits, and get out of them not only a living but a competency as well.

There is no one better entitled to such rewards than the dentist, no one who works harder, who has more capital invested in his education and his equipment, no one whose daily work makes deeper draughts on all that is in him or that contributes more to the health and comfort of his fellow men. Therefore, any movement that will help to solve present business problems, that will help to increase his income without the sacrifice of his professional honor and integrity is to be heartily commended—and in so far as these articles are helpful in this direction they are most praiseworthy. Unfortunately, human nature is alike in all the walks of life. We are so constituted that when a good thing presents itself, it becomes a fad and is taken up with such enthusiasm that we rush to extremes, and lose sight of even its most obvious limitations. Rubber, amalgam, the dental engine, crowns, bridges, inlays, local anesthesia, all bear testimony to this tendency to over-enthusiasm. Usually the pendulum swings back and the fad finds its legitimate place after a trail of more or less expensive regrets.

To my mind, however, there are tendencies lurking within this movement that bid fair to prove a serious menace to the future of dentistry, both as a profession and an art.

THE USE OF ANTISEPTICS.*

BY G. V. BLACK, M. D., D. D. S., SC. D., LL. D.

The use of antiseptics in the treatment of wounds and suppurative conditions began when Mr. Lister made his famous experiments in the prevention of the access of micro-organisms to operative wounds in 1869. As the laboratory and clinical studies proved the findings to be correct, it became a fixed proposition in the minds of medical men that in the ordinary sense of that term "without micro-organisms there could be no pus formation." Hence to keep micro-organisms out, or to destroy, if possible, those already in the tissues, quickly became a cardinal principle in all surgical work involving possible pus formation. This spread quickly to the whole world.

That the results have been beneficent no one can deny who knows the history of surgical procedures with their results, before and after that period, and the wonderful progress which these procedures made possible. Yet with the progress of time and the continued work of the wise men in the laboratories, discoveries have been made that are leading surgeons to abandon one portion of the proposition. That is to say—all will continue antiseptics for preparatory sterilizations, to keep micro-organisms out of wounds, abscesses, etc., but will not endeavor to destroy with antiseptics those in the tissues.

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*Read before the Illinois State Dental Society, Peoria, May, 1911.

In January of this year I read a paper in New York—"The Beginnings of Pyorrhea" in which the general propositions involved in this change of practice were briefly presented; and now finding that the publication will not reach you until the June issue of the "Items of Interest," an outline of the reasons then presented for this change must be included here, in order to a better understanding of the additional thought that I wish to present.

Bacteriology became a medical subject suddenly in 1869, as mentioned above. Before that time the relation of the subject to general medicine was too uncertain for it to interest many medical men. The study of the subject since that time may be divided into three periods of nearly equal length. In the first period the laboratory study followed for the most part the plans developed by Pasteur of France. This was the plan of fractional cultures in the endeavor to arrive at pure growths of the individual species. This was so difficult and the results so uncertain, that few men could succeed in obtaining practical convincing results. For this reason progress was slow, though many men were engaged in the effort.

The second period was ushered in and became available for general use in the early eighties through the discovery of analin staining methods and cultivations upon semi-solid media, discovered by Doctor Koch of Germany. These methods of work gave certainty and such ease in manipulation that skilled men could repeat and verify, or disprove, the results obtained by others. With these methods the study of pathogenic micro-organisms went forward very rapidly until we had gained an accurate knowledge of most of those now known and of the disease conditions which they induce. This was emphatically a period of the study of individual pathogenic micro-organisms and their individual toxic characters.

The third period was ushered in in 1893 by discoveries in the study of phagocytosis by Metchnikoff. Although phagocytosis had been frequently observed before, and by other men, it seems to have become a working principle in the study of immunity and susceptibility to disease, about that time through the efforts of Metchnikoff. This marked a general turning of laboratory men from the study of the characters of disease producing micro-organisms, to the effects of these in the formation of defensive bodies in the body juices and cells of the sick, by which immunity from disease producing organisms, or certain of them, is brought about. By the action of these as they occur in laboratory experiment or in nature, the animal or the man is rendered immune to the disease when one attack has been successfully withstood. These studies have led to the discovery of a whole series of defensive bodies, among which the antitoxins, such as the antitoxin of diphtheria, which is a prominent example, are now well known. These, including phagocytosis, constitute what may be said to be the normal defense of the animal body against the inroads of a large proportion of the pathogenic bacteria. It is the development of these defensive bodies in the blood of the sick person that causes the whole line of infantile diseases, such as measles, diphtheria, etc., and other diseases of adults, as typhoid fever, to end in about a certain number of days in recovery, with more or less complete immunity following.

In the studies which have been made of the effects of germicides when applied to wounds or to suppurating sores, it has been found that the effect has been to paralyze the normal efforts of the tissues themselves in their defensive procedures, and delay the healing process. For example, phenol in the proportion of one-half of one percent inhibits phagocytosis, and for the time defeats the action of those agents in the destruction of bacteria that may have entered the tissues. It also inhibits for the time the formation of antitoxins or other defensive bodies, that would otherwise be formed if the tissues were left to deal with these micro-organisms in their own way. Other antiseptics have a similar action, but varying in degree. Recent experimental and clinical work points so strongly to the correctness of these statements that surgeons are rapidly abandoning the use of antiseptics in the cleaning of wounds, and resorting to other methods by which the normal defensive action of the tissues is not interfered with.

As an example of the clinical experimentation that is being done, showing the fallacy of the use of antiseptics in wounds, I may cite one of the more recent by Axel Werelius, M. D., Chicago, published in the Illinois Medical Journal, page 355, 1911, the March issue. "Dog 4, male, greyish white; 12.5 Kgm. July 21, back shaved. Two wounds cut with a dirty razor on each side of the spinal column. Wound on the left side swabbed with tincture of iodin and covered with a dry dressing. Wound on right side covered with hot, wet, plain water dressing." "July 22,"—the next day—"Left side, wound open, greyish looking; right side, wound edges agglutinated, somewhat reddened. July 23, appearance about the same. July 24, left wound discharging pus; right seemingly healing with primary intention. July 26, about same. July 27, right wound healed. August 12, left wound healed." Sixteen days longer in healing because of the use of the antiseptic.

"Dog 5. Male, black; 8 Kgm. July 24, back shaved. Two wounds 6 cm. long cut along each side of the back through skin and fascia. July 27 both wounds suppurating; left wound swabbed with iodin; right wound hot moist water compress; both wounds treated daily with wet dressings; left wound touched every three days with tincture of idoin. August 4, right wound healed. Aug 21, left wound healed." Difference, 17 days.

"Dog 6. Female, brown; 10 Kgm. July 25th, back shaved; wounds produced as above; left wound swabbed with tincture of iodin; right wound, no treatment. Wounds were untreated. August 20, right wound healed. August 25, left wound healed."

"The experiments are few, but enough at least to throw some doubt on the value of the use of iodin in wounds. The interference in the healing process is due not only to the destruction of tissue, but also to the interference with local phagocytosis."

These experiments represent fairly the pumping of phenol through alveolar abscesses until it appears at the opening of the sinus on the gums, so much used by dentists. The results are similar.

In the pus formations as seen in the common boil, the infection first produces a circumscribed inflammation, followed quickly by suppuration. The general tendency is to the discharge of this pus in about a certain number of days. Then the pus formation ceases and within a very short time the injured tissue heals. This course is so common in this class of cases that every experienced observer confidently expects this result. This is the type of the ordinary suppurations, and this result will be the general rule. To this there are certain notable exceptions. Certain classes of abscesses have almost a uniform tendency to become chronic and to continue to discharge pus indefinitely. This is especially true of alveolar abscess, abscesses complicated with necrosis of bone, caries of bone, and in instances in which some foreign body is lodged in the flesh. In these, the type is continuous chronic suppuration.

In the first class, of which the common boil is the trite example, the micro-organisms causing the difficulty are quickly mastered by the normal defensive powers of the tissues, and are driven out or destroyed. The result is the rapid repair of the injury. This is the type of much the largest class of suppurations. When a suppuration shows a tendency to become chronic in character, there is some unusual complication that is responsible for this condition, a something that prevents the tissues from performing their normal functions in the normal way. In practically all of the cases of chronic suppuration there is some harbor for the growth of micro-organisms, so separated from the active functioning tissue that they cannot be reached by the tissue cells. In these out-of-the-way places micro-organisms multiply and continually furnish virulent organisms to reinfect the region involved. In alveolar abscess this point of continued growth is the pulp chamber and root canals of the tooth. In chronic abscess due to necrosis, the dead bone furnishes the place for continuous growth out of reach of the tissue cells, and continuous reinfection results. With the removal of these nesting places, the abscess heals spontaneously, or in other words, is healed by the normal action of the tissues.

In still other cases decomposition of the secretions, with the formation of soluble toxic products, occurs, especially in broad pus-forming areas, in cases complicated with necrosis, or abscesses with retained secretions, etc., because of the admission of organisms of decomposition, in themselves non-pathogenic except as they produce toxic products by growing in retained secretions. It was these that gave the greatest difficulty in the treatment of suppurations before the discovery of the relation of micro-organisms to pus formation. Such organisms give rise to the foul odors which are occasionally present in the secretions, and to toxic agents which interfere directly with the defensive action of the tissues involved.

In the treatment of suppurations the effort should be to preserve the effective condition of the tissues, to break up and remove any necrosed bone, or obliterate such spaces as root canals in alveolar abscess, or root ends from which the tissues are detached, and effectually prevent reinfection from all such sources, and to remove by mechanical washing any micro-organisms that may be detached, and in this way render the parts as free from loose organisms as possible. In a word, to render the parts clean and free them from all pockets that afford lodgments which become breeding places for infections or toxic material. We may add to this every possible effort and care to prevent further infection from without. When this has been done efficiently without injury to the tissues, clinical experience, clinical experiment and laboratory experiment combine to show that the tissues themselves will destroy or expel those pus forming micro-organisms that have entered in among, or into the cellular elements.

Thus far the most effective way of doing this cleaning after mechanically producing sufficient access to inclosed spaces, and removal of breeding places as related above, is by washing with warm, or hot, physiological salt solution (normal salt solution). By this expression—washing—is not meant the throwing of a little of the solution into the wound or abscess and leaving it there, but the continuous flooding of the part and repeatedly hunting out every detail of its openings, through a small syringe nozzle with force enough in the stream to detach every loose particle, and effectually remove it.

Perhaps this illustration will help to impress my meaning. During the holidays this winter, 1910-11, workmen were employed in re-seating and straightening up some heavy museum cases in our building. In setting one of these on the seat prepared, one of the men had his third finger caught and badly crushed. He was taken to the surgical room and I was notified. I found the finger badly injured. Though the bones and joints were intact, the soft tissues were badly crushed and lacerated, the skin was torn on the palmar surface from a little beyond the second joint out over the end of the finger, and one edge of the broken skin was buried in the wound. The man had been working on the floor and his hands, including this finger, were covered with dirt and grime. The picture was as unpromising for speedy healing as it could well be made.

After adjusting the portion of the skin doubled into the wound, the hand was washed as well as possible, avoiding getting soap into the wound. When this was dried the skin of the injured finger was washed over carefully with a five per cent solution of phenol, which had the effect of whitening the epiderm just a little. Especial care was taken to avoid getting any of the phenol into the wound. The excess was then washed away with alcohol. A small smooth-end nozzle with an opening 1.2 mm. in diameter, throwing warm normal salt solution with considerable force, was inserted into the wound and passed slowly about, hunting out every nook and crevice among the ragged tissues over and over again continually going from place to place and back again repeatedly, for full fifteen minutes, washing away and removing every loose thing. The wound was then carefully stitched up, and the ragged margins of the skin placed in the best possible adaptation. The finger was then bandaged, and a bunch of absorbent cotton placed on the palmar surface to absorb serum that might issue, an outside bandage placed, and the patient discharged for the day. He was instructed not to open the bandages for ten days unless he had pain, fever, soreness in the axilla, or bandages saturated from within. None of these danger signals appeared; cicatrization was complete in eight days without one drop of pus.

Such an individual case might readily be regarded as a very fortunate result, but so many of these fortunate results occur with this painstaking cleaning that this result is the rule. If I had washed out this wound with the phenol solution, suppuration would certainly have occurred because of the paralysis of tissue. In all such cases, and in pus formations in general, phagocytosis is the normal cleaning agent employed by the tissues. In every part of our treatment the object should be to keep this function in full activity. We should use no agent that depresses its activity or paralyzes its action.

That there are other local defensive bodies formed which assist in this work there is but little doubt, but of these there is not yet such definite knowledge as would justify a discussion of them.

Clinical and laboratory experiment and careful observation in clinical practice unite in showing better results from this kind of procedure than in any use of antiseptics in accident wounds, abscesses, or other suppurative conditions. Before I left my private practice for school work, I had very thoroughly tried out the comparison of this in practice, side by side with the use of the usual antiseptics. In this I found the abscesses in which the antiseptics were used were from two to eight days slower in healing than those that had no other treatment than the cleaning of the root canals. In the smaller abscesses—those that were continuously active, but were discharging but small amounts of pus—but little difference was observed between washing with salt solutions and no such treatment. Both seemed to do about equally well. In those cases, however, whether chronic or acute, in which there were large amounts of pus, the advantage was very decidedly in favor of full and free irrigation. Healing would occur several days earlier as the rule.

During this last school session a very important experiment involving the treatment of hundreds of alveolar abscesses, has been carried out under the supervision of our clinical instructors. At the beginning of the session it was ordered that no antiseptics whatever be applied to the soft tissues, and that the antiseptics used in sterilizing root canals be restricted to the smallest sufficient amount. This was restricted in this way. After the mechanical cleaning of a root canal, a very small bit of cotton was wrapped upon a smooth broach and dipped in the antiseptic chosen. This was then dried as completely as possible by squeezing out the surplus with a large pledget of absorbent cotton or a fresh clean napkin. Then the cotton so prepared on the broach was laid loosely, i. e., placed well down toward the apical end of the canal without being packed, and the cavity sealed. The object was to prevent pushing any part of the antiseptic through the apical foramen. A reasonable sterilization, or such as would prevent a new growth for a week or ten days, was all that was aimed to be accomplished. Complete sterilization was not expected, since this has not been found possible with regularity with any antiseptic employed. Very generally the abscess would be healed in that time, and the root canal could be obliterated by a gutta-percha filling. This treatment was varied to meet certain contingencies that need not now be discussed. Many examples in such a large number of cases among the nine thousand persons treated in our clinic year, are found, that are incurable by any treatment short of the removal of the tooth. But the effect in preventing sore teeth and those that present drooling of serum into the root canals, which is generally caused by antiseptics, causing the dressings to be wet time after time, were at once so much diminished that we might say there were none.

This treatment does not call for any especial differences in preparatory treatment of the hands, instruments, field of operation, etc., from that formerly employed. This sterilization may be done by heat, by germicides, by mechanical cleansing, etc., as heretofore.

This use of germicides for these purposes will not be included in this discussion further than to urge even greater precautions, if that be possible, than have been had heretofore, to keep micro-organisms out of wounds, whether accidental or deliberate, using germicides liberally for these purposes, but excluding the germicides entirely from injured tissue everywhere.

In the treatment of suppurations in dentistry, there is probably no other condition in which the use of germicides as antiseptics has done, and is yet doing, more harm than in the use made of them in treating diseases of the peridental membranes and gingivae. By this usage the tissues are so paralyzed that they have no chance for repair, and exposed as they are to continuous reinfection, any healing of injured tissue becomes almost impossible. In many of the cases coming under my observation, reported as cured, the tissue was simply in a state of paralysis. No new tissue growths had occurred to heal the injuries. The pus formation was stopped for the time, as was every other activity common to these tissues in their diseased states. With the return of normal activity we may expect the return of active suppuration in all such cases.

By the methods employed in washing, the free margins of the gingivae are readily picked up, distended, and the subgingival space cleaned by the stream of water. It only requires that the syringe nozzle be laid against the tooth, so as to direct the stream toward the gingivae, to do this. Patients quickly learn the sensation induced by this washing, and by a little training soon become able to do it themselves. By this method pus pockets of moderate depth, and many that are deeper, may be well cleaned as often as may be necessary (at least twice per day) and when healing is possible, it will be obtained.

THE MANAGEMENT OF SALT SOLUTIONS.

For office use a stock of the saturated solution of sodium chlorid should be prepared from the common table salt. It has been urged by some that chemically pure sodium chlorid be used; but the fact seems to be that the table salt harmonizes more closely with the salts found in the blood and body juices than pure sodium chlorid. This saturated solution is necessarily sterile because of its poisonous properties to all forms of life, both animal and vegetable. It can, therefore, if well inclosed, be kept on hand for a considerable time. A much smaller receptacle can be filled from time to time for daily use. From this, the diluted solution should be made for the occasion when needed, in every instance by the addition of the proper measured amount of the saturated solution to warm sterile water. No attempt should ever be made to keep the dilute solution on hand because of the imminent danger of microbic contamination, for in this form micro-organisms will live in it more readily than in pure water. Indeed it is practically the solution which experimental pathologists use for the preservation alive for the longest time separated from the body, the tenderest cellular elements, for purposes of study. It is the most congenial fluid to living cells that has been devised. It is this that gives it its great value as a cleaning agent.

To prepare the saturated solution place one pound of table salt in a half gallon bottle and then fill it with pure water, leaving only sufficient space unfilled for effective shaking. Shake this up very thoroughly, continuing the shaking several minutes. On setting this away the undissolved salt will quickly settle to the bottom, but the fluid will remain white from the suspended starch granules that are always placed in table salt to guard against hardening in damp weather. This will settle also after some hours, and lay on top of the undissolved salt. Repeat the shaking five or six times during the day, and then let it stand over night.

Next morning give it another thorough shaking and prepare for filtering. Use a common glass funnel that will hold a pint or a pint and a half. Use two thicknesses of common filter paper. When ready, give the contents of the bottle another thorough shaking and immediately fill the filter, pouring over as much of the starch as possible, but none of the undissolved salt. When this first has run through the filter, pour it back, shake up, and refill the filter. This first filtrate will be imperfect because many starch granules will get through the filter and render it turbid. When the fibers of the paper have become thoroughly wet and swollen, the starch granules will not pass through and the filtrate will be as bright as crystal. But it will go through the filter very slowly. From this time to the finish, keep the filter well filled.

With the process carried out in this way, there will be twenty-five per cent of salt in the filtrate quite regularly, or so near that percentage that may be taken as the figure for use in making dilutions.

If the jar is shaken three or four times within as many hours, and then filtered, from eighteen to twenty-one or two percent of salt will be obtained. If it is allowed to set for a week, shaking well three or four times per day, I have obtained twenty-seven and a half per cent of salt as the largest possible amount that water will take up and hold in solution. Temperature has little effect in the solution of salt, and may be ignored.

It seems that water takes up the last of salt that is possible for it to dissolve, very slowly, and the regularity of the percentage will depend much on the time employed. Twenty-four hours, as detailed above, seems best in practice.

To test out the percentage of the solution, requires a good analytical balance, and a light glass shell with a close fitting glass cover. These are made for this class of determinations and can be had of dealers in laboratory supplies for a small sum.

The glass shell is weighed—including the cover—and its weight recorded. A small amount of the filtrate, say one-tenth part of what the shell will hold, is poured in and closely covered to prevent evaporation. This is now weighed and the record made. Then the cover is removed and the water evaporated at a moderate heat, say 120 degrees F., until fully dry. Plenty of time, say twenty-four hours, should be given after it appears to be dry.* Then the shell is again covered and weighed with the residue. From these weights the percentage is calculated.

In making up the physiological salt solution from the 25 per cent or other solution, the percentage should always be as much as five-tenths of one per cent (0.5%), and never more than eight-tenths of one per cent (0.8%). Any percentage between these two will be good for use. The six-tenths per cent (0.6%) is probably the better strength. A ready rule is: Divide the percentage of the saturated solution by the percentage desired for use, and the amount will be the number of parts of sterile water to one part of the saturated solution, thus—

25% divided by 0.5% equals 50
25% divided by 0.6% equals 41 2/3
25% divided by 0.7% equals 35 5/7
or 25% divided by 0.8% equals 31.25

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*A warming box in which the temperature is controlled by a thermostat should be used in such work.

The six-tenths and seven-tenths have continuous remainders in decimals, but may be made complete in vulgar fractions. Each of these when multiplied by 5, 6, 7 or 8 gives 250 cc. of water. The result is that if 250 cc. of water is taken for the preparation of the physiological solution, the addition of five cc. makes the five-tenths per cent solution; six cc., the six-tenths per cent solution; seven cc. the seven-tenths per cent solution, and eight cc. the eight-tenths per cent solution. Multiples of 250 cc. may be used for making up larger amounts when needed.

A common full sized drinking glass holds 250 cc. of water comfortably. It is convenient for filling the syringe, and the amount is about right for the usual uses in dentistry. The glass used should be measured and a mark cut with the sharp corner of a stone running in the engine, designating the point to which it should be filled. Then the common ten cc. graduate completes the outfit.

These vessels should be set apart for this use, and not be used for any other purpose whatever. They should always be cleaned immediately after being used, and kept inverted. They should be sterilized before being used again.

POISONING WITH SALT SOLUTIONS.

I happened to learn something of the poisonous character of salt solutions when a boy on the farm. One day my father set me the task of boring an auger hole into each of a number of stumps of trees that were making themselves obnoxious by sending up sprouts instead of dying as decent stumps should. I was instructed to fill each of these holes with salt. The result in every one was death, root and branch. I included a few trees in the boring. They also died promptly. I learned from this that a saturated solution of salt was a very poisonous proposition. In its use great care is necessary.

I saw a case of ugly poisoning some weeks ago. A woman had had an abdominal operation that was severe and rather prolonged. After recovery from the anesthetic, she passed into an alarming condition of shock. The surgeon ordered the nurse to inject a pint of physiological salt solution into the loose areolar tissue under one of the mammary glands. This had the effect of resuscitating the patient. But after some hours it was noted that there was a large pouch of fluid over the ribs below the point of injection, and that the skin over this and in the whole neighborhood was very completely anesthetic. The skin was snipped and the pouch emptied. This was regarded as very unusual and an investigation disclosed an error. The saturated salt solution had been injected instead of the physiological salt solution.

When I saw the case four days later, the skin was dead over an area about as large as the palm of my hand, including the fingers and thumb. The line of demarkation between the living and dead tissue had become well marked. The dead tissue was dry. The neighboring tissues were still devoid of sensation. There was no pain. Otherwise the patient was in excellent condition.

I have heard rather indefinitely of another somewhat similar occurrence presenting a similar clinical picture, but have not yet obtained details.

There is a rumor that a number of cases of poisoning by salt solutions have occurred in a New York hospital, but I have not obtained a clear statement of these. There is one fatal case reported in which by mistake a saturated solution of salt was injected into the rectum and retained. The gut was destroyed.

It seems that these salt poisonings have peculiarities all their own, so much so that one having seen one or two would recognize it at once when meeting with such a case. These things warn us that great care is necessary.

DENTITION AS A PREVENTABLE DISEASE.*

BY P. J. KESTER, D. D. S., CHICAGO.

There is a world wide movement at the present time, which has for its object the conservation of the child. Society is beginning to recognize the fact that it is under a tremendous obligation to the child, and that it has no right to allow children to grow up in ignorance and squalor—surrounded by baleful and harmful influences.

The study of preventable diseases has startled the world, and the statements made by those who have investigated this subject seem almost incredible—

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*Read before the Odontological Society of Chicago, April 4, 1911.

Dr. John H. Hurty, Secretary of the Indiana State Board of Health, says, "That over 1,258 died out of the schools last year, and that of this number 82 per cent, or 1,031, died from preventable causes. In addition to these deaths from preventable diseases there were not less than than 100,000 cases of preventable diseases, most of them mild in form, yet the sorrow, anguish, anxiety and suffering due to these preventable causes cannot be calculated."

And that brings us to the consideration of one preventable disease, that is *not* a disease but is classed as one by the physician, teacher and public—

Several years ago we presented a paper to this society which was based largely on the vital statistics of the United States Census of 1890, in which we called your attention to the wide difference in the number of deaths attributed to dentition, as you may recall it was said, "that Illinois, where 15,000 deaths of children occurred under two years old, 82 were reported as having died from dentition, while in Georgia, with about one-half the number of deaths (7,500), 450 were said to have died from dentition (about 6 per cent of the total number). The reasons for this is not hard to guess, for medical science was not as well developed in the south, and illiteracy and ignorance among poor whites and colored people was great in those days.

Being curious to see if any improvement had been made, we again consulted the last vital statistics report published,* and found that while Illinois held about the same relative proportion: Illinois 18,023 under 2 years [24 deaths from dentition] Georgia had moved forward, the record showing only 310 deaths out of a total of 9,097, as having died from this cause—about 3½ per cent—previous record was more than 67.

That the practicing physician still assigns dentition as a cause

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	Deaths Under 2 Years Old.	Cause Dentition
Michigan	9,378	21
Louisiana	6,530	130
Indiana	8,970	20
Alabama	8,001	205
Illinois	18,023	24
Georgia	9,097	310
Maine	2,754	2
Arkansas	6,981	69
New York	39,381	192
New Jersey	10,870	30

of death is manifest from the reports just referred to. Where does he get his information? Is it purely traditional, or are there teachers who still teach that teething is a disease? You will pardon a few references—

George Frederick Still, M. A., M. D., F. R. C. P., Professor of Diseases of Children, Kings College, London, says, "Teething as an explanation of symptoms is often a cloak for ignorance"—and then devotes seven pages of his valuable book to the enumeration of disease that he thinks *might* be caused by dentition. He includes fever, diarrhoea, convulsions, abscess of the ear, catarrhal affections, etc., everything in fact that infancy is heir to, and concludes by saying, "with regard to all these dentition disorders it is clear that the casual relation of dentition to the disorders is an assumption, resting upon no more solid basis than the observation of many cases coincident with the period of dentition—Fancy! as dentition covers a period of from 6 months to 2 years it is not so strange. He also cites the painful eruption of some third molars as further proof.

He might also have referred to the second dentition which extends from the age of 6 to 12. We believe that it is conceded that all infantile diseases are more violent and quite as fatal when they attack the child of 6 to 12 as when they are younger, yet who ever heard of a child of 8 or 10 complain of pain in an erupting permanent tooth? They, the teeth, travel farther and in many cases where the temporary teeth have been out for a long time the tissues become very hard—so that it seems to us that occasionally at least you would hear of the painful eruption of the permanent teeth.

John Ruhrah, M. D., Clinical Professor of diseases of children, Baltimore, Md., says, "Roughly speaking (it certainly is rough), one-third of all infants cut their teeth without any trouble; one-third have slight disturbance, while the remaining one-third are made really ill by cutting each tooth. Symptoms: stomititis, vomiting and diarrhea, enlargement of cervical glands, eczema, urticura, (luckily he has discovered what produces hives,) bronchitis and convulsions." That must be where some of those southern doctors got their ideas on teething.

Chapin & Pesik, New York and Vermont, Disturbances of Dentition, say, "Many bodily disturbances formerly attributed to teething, are now known to have other causes that have been revealed by more accurate diagnosis; many troubles at this time are due more to faulty care and feeding, than to any physiological activity and growth." (Note that the census report of 1900 does not give a single death from dentition in Vermont.)

One more reference and we are done, from "Diseases of Children." Translated by Salinger, and edited by Abraham Jacobi. A volume of monographs by the best German writers. (Dentition diarrhea.) By A. Monte, Vienna. He says, "The teaching of dentition diarrhea originates from a period, when in the absence of other recognizable causes gastro-intestinal diseases were assigned to an external conspicuous process of development-dentition."

Convulsions in Children," same volume, by H. Hochsinger, Vienna. "There can be no doubt of the occurrence of convulsive conditions due to reflex causes in infancy * * * but it is necessary to enjoin caution against assigning a place to *dentition* in the etiology of infantile convulsions. Even in the works of modern authors we read of reflex spasms which are attributed to the rupture of a tooth."

He says further, "It cannot be emphasized too strongly that cutting of a tooth is a normal process of growth; that there is no sudden rupture as occurs in the perforation of an abscess, but that on the contrary the gum gradually atrophies over the growing tooth without injury, hemorrhage or erosion," and he might safely add without pain or disturbance of any kind whatever.

He further says, "To Kassowitz particularly is due the credit of proving the untenableness of the teaching of convulsions of dentition, and explaining with great enthusiasm and skill that convulsions which appear in childhood during the period of dentition, are not due to teething, but are dependent upon quite different conditions, rachitis febrile diseases and the like, which upon minute investigation can always be determined without much difficulty."

Dr. Jacobi himself wrote to the same purpose in 1862—vide dentition and its derangements. You will pardon us for the numerous and lengthy quotations we have made, but we are endeavoring to establish two main points:

First. That some teachers at least still teach that dentition is a disease,—although there is not the slightest evidence to show that dentition has any connection with the diseases mentioned,—except that it is co-incident with them, yet the student who depends on these teachers would certainly be obliged to accept the truth of their inference. And as a further evidence that it is still recognized by the physician is shown by the Vital Statistics. But in justice to the census bureau we must not forget that they are endeavoring to correct these reports.

In the Manual of the International Classification of Causes of Death, under the head of indefinite and ill-defined returns made, the following suggestion is made, as to the reports of death due to dentition:

"Teething is not a satisfactory statement of cause of death, but, on account of its presence in considerable numbers in the actual returns, a special place has been provided for it among diseases of the digestive system in the census classification. Inquiry should always be made for the disease, as enteritis, etc. that caused the death of the teething infant; and, secondly, that it is most forcibly shown by men who are entitled to speak on the subject, men who have made a special study, that dentition is a purely physiological process, and as such has no possible influence on the health of the child, and brings me back to the statement, that dentition is a preventable disease, because it is no disease at all."

Then while we are affiliating with the Oral Hygiene Committee of the National Dental Association and joining the country-wide movement to care for the teeth of the school children which has shown such splendid results already, and promises even greater benefits, let us not forget that we are handicapped by the old superstitious notion of dentition,—that many children are annually sacrificed because of the belief that teething causes many of the ills of childhood.

Much permanent injury is done at this period of rapid growth, and instability, especially of the digestive and nervous systems, which might have been prevented had the truth been known as to the real causes. Our only apology for this long paper is that to us, it seems one of the most important subjects in the domain of medicine and includes dentistry as well, and that it is a subject that has not received the attention that its importance demands. And I would urge that while we are carrying on our campaign for educating the public, that some notice be given of the true dangers of dentition; viz. that a proper development of the teeth is impossible unless the health of the child is maintained, and that *more* injury is done to the erupting tooth by departure from the normal, than *ever* occurs to the general health of the child, by any local disturbance about the erupting tooth.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

The regular meeting of the Chicago Dental Society was held at the Northwestern University building on Tuesday evening, April 18, 1911, at 7:45 p. m.

The meeting was called to order by Dr. F. H. Zinn, President of the Society.

Dr. William H. Taggart presented a paper on "The Scientific Casting of Gold."

DISCUSSION.

DR. EDMUND NOYES:

Mr. President, I did not know that I would be called upon, and therefore have made no preparation. The most important thing for me to say, I think, is to urge upon you a willingness to do these things with the minute accuracy which has been described tonight. There are one or two elements in the problem which were not discussed by the paper. The question of the amount of shrinkage of gold in its change from liquid to solid, and the further amount of contraction between the highest solid temperature and the temperature of the mouth at which it will be used, and the relation which this has to the question of contraction or expansion in the wax model, to contraction or expansion in the investment, and as to whether either of these latter can be used to correct the necessary fault caused by the shrinkage of the gold, for there is no question that the shrinkage in the process I have described is sufficient to make a loose inlay, and to allow a layer of cement of appreciable thickness. The protection of our inlays, if there is no correction for this shrinkage, will depend on the beveled margin of the cavities which the margin of the inlay overlaps and can be burnished down against. In this way, if the cavities are carefully prepared, and the circumstances are favorable, the margin can be made fairly as close. From my observation, and from what I have heard people say, I am afraid that there are only a few dentists who have been in the habit of doing any kind of work quite so accurately as is necessary in the warming of Dr. Taggart's wax, and using it at a temperature which does not vary more than two to four degrees from a given point. If you use Dr. Taggart's wax, I warn you that you must know what temperature you are using. A difference of six or eight degrees will make it either too soft to work properly or too stiff to work properly, and you cannot guess at it. If you want your amalgam fillings to be much good it is just as important to weigh the fillings and the mercury and have them in accurate proportions, and it is indispensable to carefully weigh the investment material for the casting process, and also the water with which it is mixed. We must learn some of the things which the chemists teach in the laboratory about accurate work instead of doing things by the rule of thumb, as Dr. Taggart says too many are doing.

One of the greatest difficulties in the handling of wax has been that everyone that I have found, with one exception, is too plastic at the mouth temperature, and there is too much liability of its becoming distorted before it is invested. The fact that Dr. Taggart's wax is hard enough at the mouth temperature so that you can work on the surface without fear of moving the rest of it, is a most important consideration, in my judgment. You cannot put it into a cavity and take it out as quickly as any one of half a dozen others, but you can make inlays with more certainty of success.

Dr. F. E. Roach:

Mr. President, Dr. Taggart has presented the matter so fully that there is practically nothing to be said. About all I could say would be to emphasize some of the good things he has said.

It is, indeed, an honor to contribute a word to this discussion. I feel that there is so much to this scientific casting of gold that we do not observe, and in the manipulation of this material by the casting process, that it is necessary for Dr. Taggart or someone to be continually bringing us to task for our short-comings. There is something marvelous in the fact, that we can handle this process as carelessly as we do, and get the results that we get. The manipulation of the wax and of our casting materials, the casting of the metal itself, the burning out of the wax, and the entire procedure, if we are going to get the best results, must be done with a reasonable amount of accuracy. We have every reason to believe what Dr. Taggart tells us, and I think our experience has taught us that it does pay to be careful, and know what we are doing when we are handling the various materials, and following out the various steps of the technique. I have been especially pleased to learn the way in which Dr. Taggart has used this investment material, and that he has gotten it to a liquid condition; that we can make so thin a mixture of our investment, which is certainly an advantage, as it permits the gases to escape. He has beautifully illustrated that this evening. The fact that he eliminates haste in the work is a decided advantage in the use of the material. Of course, it is not necessary for us to use all the various devices that Dr. Taggart has shown us in order to accomplish these results, yet they are advantageous, and are evidences of the accurate method that Dr. Taggart is employing in his work.

I was especially interested in Dr. Taggart's remark in regard to the mixing of the silica in our gold alloys, where we have used platinum. Those of us who have used porcelain, and have been puzzled by the breaking of the platinum pins, will be interested in his explanation. I have been using quite extensively an alloy of gold and platinum, believing that that would be a stronger material, but I have noticed the sluggishness with which it would cast, and that it becomes sluggish after repeated use. This explanation by Dr. Taggart is new to me, and I am glad to have heard it.

Dr. Fernandez:

Mr. President, Ladies and Gentlemen—As we all know, Dr. Taggart is certainly a wizard and as usual, he brings to us tonight another happy surprise. He shows what mistakes we have been making by burning out our moulds any longer than fifteen minutes when some of us have been burning them out for two or three hours.

His electrical appliance for heating the wax to the proper temperature is certainly a revelation to us and no less so, are the other two appliances he has exhibited tonight; viz. one for mixing the investment and the other for burning out the moulds. We are certainly indebted to Dr. Taggart for all these improvements he has given us and which greatly elevated our dental profession.

In regard to what causes these peculiar defects in the castings, I would say that it is a question in my mind whether the castings are the cause or not.

I wish to differ with Dr. Taggart in regard to the pure gold being the best gold for our inlays. My experience teaches me that an alloy of even only one karat improves the gold for inlay work.

Dr. G. W. Dittmar:

Mr. President, I hardly think it fair to our distinguished essayist to not have men prepared to open the discussion. I think the majority of us get up and stumble around, and do not know exactly what to say. I am not criticising the discussions, but I know that I am not capable of discussing this paper as I would like to.

Dr. Taggart has given us something tonight which indeed merited the splendid ovation and applause he received. I differ with Dr. Roach and believe these appliances are necessary, if we want to do the exact work that Dr. Taggart would like us to do. I have been a very close follower of his teachings ever since I became interested in casting. I have not always obtained the results I would have liked, and yet I have gotten fairly satisfactory results. I have found that there are many things that one finds out for himself. One cause of porosity is the overheating of the gold. I have found many times that if I made a casting with gold heated as white as the sun, that it was not as smooth as if I had the right temperature. Now if Dr. Taggart would invent some way to show us when to pull the lever on his machine it would be a fine thing.

The subject of cavity preparation was talked about, and Dr. Noyes hit the nail on the head when he stated that the protection of the cement under our inlays will depend on beveling the margins of the cavity. My inlays have lapped joints. I bevel the cavosurface angle of the cavity and when the gold inlay goes into position I can burnish the margins down. The inlay fits, i. e. protects the cement.

I do want to emphasize a thing that was not touched upon here tonight. I am a thorough believer in relieving the inlay according to the directions of Dr. Roach, so that we get a good marginal adaptation and thicker bed of cement under the body of the inlay.

Now one little point that Dr. Taggart overlooked. I do not give it as anything new, because I got it from him, but when you mix your investment material be sure that you have a clean and dry plaster bowl. If it is not dry you will have more water than you want after you measure it out, and it will cause too thin a mix. On the other hand, if the least coating of Plaster of Paris is in the bowl, this amount of plaster will cause the mix to set a little quicker. Accuracy is necessary to get the best results. I will say for Dr. Taggart's new investment material that the smoothest and I believe the most accurate castings I ever made, I made with the use of this new material.

I have found that the pure gold inlay batters considerable; a well condensed foil filling of gold is much harder than a pure gold cast inlay. When making a gold inlay for a gingival cavity, I always use pure gold, but if I am making an inlay to bear considerable stress and attrition I use about 2 per cent platinum alloy, or more often 22 carat gold. I want to thank Dr. Taggart for his excellent presentation.

DR. ROACH:

Dr. Dittmar made a remark that made me think that I had said something disparaging to Dr. Taggart's work. I want to correct anything of that sort. While I do not believe that Dr. Taggart means to say that this equipment is necessary, I do not want to disparage its value. I believe we should have every facility in the way of equipment that would enable us to do our work better.

DR. B. J. CIGRAND:

Mr. President, the fact that many members prefer to miss their suburban trains tonight is an evidence of the regard we have for Dr. Taggart. It is an unusual thing to find an audience of this size here at this time of night. This is the high-water mark, so to speak, in operative and prosthetic dentistry, and classes dentistry as both an art and a science. This is illustrated in no better way than in the gold inlay, as performed by Dr. Taggart. As I told Dr. Goslee a few moments ago, I think it is operative and prosthetic dentistry linked together with a golden chain.

I am glad Dr. Taggart spoke of the breaking of the platinum post on the Logan crown, or continuous gum work. I have always wondered why it was. Some people have said that Dr. Taggart was trying to be over-particular, but I doubt whether you can use such a statement in the practice of dentistry. You should be exact because medicine and surgery have taught us that advancement is made only by the so-called over-particular. That is how they have lessened the death rate in diphtheria and appendicitis. If the criticism has gone out that you are over-particular, take it as a compliment to your advanced standing. The one thing that is holding dentistry back is hasty and slip-shod work.

Now let me say something about the failure of cements. I told this to Dr. Crouse about a year ago, and he told me I was correct. Very often a first-class inlay is made, and we spoil it in the so-called finishing touches. We insert it in the cavity and proceed to produce a polish. If you over-heat that gold inlay while polishing it, and produce a heat that reaches your cement, you have spoiled your cement. If you have any doubt about it try it, and you will find it to be true. There is such a great field in this work that notwithstanding we think Dr. Taggart is the great advance agent, I believe that he feels that he has only started.

Dr. Hart J. Goslee:

I hesitate to enter into the discussion of this paper, but do so only for the reason that it has been my special privilege to open the discussion on almost every paper that Dr. Taggart has presented on this subject. Hence my modesty has kept me to the background until I realized two things: first, that we have again listened to a most excellent paper from Dr. Taggart, which, because of an oversight on the part of the program committee has not been properly discussed. This is said with due credit to the gentlemen who have preceded me. I do not know how it came to be over-looked, but I think that in the enthusiasm of the chairman of that committee upon his success he thought that all that was necessary to make a big meeting would be to get Taggart. Whilst this is true, yet an injustice is done to Dr. Taggart because he expected to hear something from us as to our belief in his statements.

The second reason why I hesitate to enter into the discussion is because I would wager that if a poll were taken of this audience at the time tonight when it was largest, that everyone here would have claimed that he did scientific casting, and yet I believe that there is not a single one of us present who does scientific casting.

Dr. Taggart has worked a long while, to my personal knowledge, to bring out the various phases of the intricate detail which make it possible to accomplish perfect casting, but very few of us have followed him close enough to do it. This is proven by the fact, that we all have failures. It appears to me that these failures are unnecessary. I am confident of this because the process has been reduced to such a state of exactness that if we will follow directions I do not see how failure is possible, excepting, of course, in large work. I do not think that even Dr. Taggart has perfected the detail for the larger work, but with proper encouragement it will come. Minute attention to detail is absolutely necessary to bring about accuracy.

When Dr. Taggart first sent me a sample of his special wax, I said I could not use it, because it was too hard. He replied that it was not, and that if I would use it as he told me to I would get the results I wanted. He realized that there was a certain degree of plasticity demanded, and he never stopped until he got that degree of plasticity at the proper temperature. If you gradually heat this wax so that the heat will penetrate through it uniformly you will have a workable degree of plasticity, and when chilled a model which will not be distorted in removing from the mouth.

The same thing applies to investment materials. I have used any number of investment materials, for all of which claims are made that they will not shrink or expand, but they all shrink and expand under the influence of heat. Realizing that this was a physical principle which had not been or may not be entirely overcome, Dr. Taggart set to work to produce a material which would shrink and expand as little as possible. This, he has accomplished and in addition he has given us one which we have time to manipulate. You have probably heard dentists say that you must have a cone-shaped flask so that the shrinkage of the investment material would not admit of it being dropped out of the bottom of the flask, but the cone-shaped flask being only for the purpose of taking care of the great shrinkage, it has no advantage at all. Dr. Taggart has given us an investment material, however, which can be heated in a straight flask and yet you cannot dislodge the investment from the flask even when hot.

I agree with the statement that we overheat our cases. If we use a wax that melts at 200 or 180 or 140 we do not have to go very much beyond that to completely burn it out, and yet I have seen many heat their cases up to a red heat.

The casting process is not a slip-shod method at all. It requires as much skill to make a good cast inlay as anything else I know of, notwithstanding the fact, that the original model is made of a plastic material. I think many of us are making the mistake of thinking that the process is too simple and easy. It is just the reverse. The more attention we give to detail the more perfect will be our results, and if we aim to get perfect results we cannot possibly neglect detail or we will meet with failure.

Dr. C. E. Bentley:

Mr. President, if you go to the Art Institute and look at any of the display that may be there you are struck possibly with the hang-ings of the pictures. The man who knows how to hang a picture is almost as much of an artist as the man who knows how to paint a picture. Sometimes you will see one vast wall upon which there is one picture. Now, I want to say to you that in the framing of this program I have been trying to put one picture on the wall, and that is my compliment to Dr. Taggart.

Dr. Crouse:

I was impressed tonight when I saw this audience and the enthusiasm over this new method which has revolutionized the practice of dentistry. The discovery of the rubber dam, which revolutionized dentistry, did not prevent Dr. Barnum from dying a pauper. I hope Dr. Taggart will not die a pauper. Some men criticize Dr. Taggart, but Dr. Barnum tried to get a patent, and I tried it on the same thing.

In answer to the question that was asked by a gentleman in the rear, there are cements that are impervious to moisture, and that do not shrink, while there are many others that are not that kind. Nothing will injure cement so much as working at it while setting.

Dr. Fernandez:

I wish to remark in favor of Dr. Taggart's unselfishness which he has certainly demonstrated on several previous occasions and repeats again tonight, and that is, he shows and demonstrates tonight all these new appliances without having any of them for sale. It simply shows that Dr. Taggart is not after our money but more so, after scientific achievement.

Dr. Taggart (closing the discussion):

I do not know as there is anything more for me to say. Some of the questions asked would be hard to answer without more thought than I have been able to give them.

With regard to Dr. Fernandez' remarks in relation to the softness of pure gold for inlays I contend this, that the extra accuracy of fit which can be obtained by pure gold in comparison with any alloy you can find more than outweighs any softness of the material. On the other hand pure gold, to my notion is one of the greatest saving elements in inlay work. In faulty articulations of any kind alloyed gold is so hard that it will not get out of the way of the occluding cusp, and consequently a continual pounding is taking place on that inlay. If it remains in its place under that excessive pressure the tooth becomes sore and tender. In looking into the mouth the battered spot is very apt to be overlooked, because you are not able to see it. Pure gold adapts itself to any faulty articulation. I have tried and tested all these different alloys, but all the work that I am paid for is done with pure gold, and the softness has never been an element against an inlay filling yet in my practice. Alloyed golds do certainly absorb gases very rapidly in comparison with pure gold.

In answer to a question by Dr. Crouse as to the heating of gold Dr. Taggart said:

We seem to have the idea that gold is different from anything else and we boil it. If we had the means to boil platinum we could not get it any hotter after it is boiling than water. You may volatilize it, but as far as the temperature goes it is the same as any other liquid.

In answer to the question: Is there any difference between pure gold contraction and alloy contraction, Dr. Taggart said:

I think there is. I think I get better fits with my pure gold. Most of this talk about shrinkage of metals comes from the fact, that we have always been told that such conditions exist. If you melt a piece of gold on a piece of charcoal you get some shrinkage. You must remember we are casting metals today as no one living has ever cast them before. There is just that much difference that makes it possible to bring the specific gravity of pure gold up so high as to make it 19.45, when 19.16 is what every chemist has considered was the ultimate density of gold. I have been able to overcome the contraction to a marked degree. In order to get this specific gravity I use a pressure of 7 or 8 pounds.

In answer to a question Dr. Taggart stated that it makes no difference as to the position of the inlay over the flame. He also stated that the wax would burn at a temperature of about 200 degrees, and when it begins to burn it comes pretty nearly being volatilized.

ILLINOIS STATE DENTAL SOCIETY FORTY-SEVENTH ANNUAL MEETING, MAY 9-12, 1911.

DISCUSSION ON THE PAPER OF DR. TAGGART.

Dr. H. J. Goslee, Chicago:

Mr. President, ladies and gentlemen: I cannot imagine one receiving a greater honor than to have been selected as the one to open the discussion upon every paper which Dr. Taggart has presented to the dental profession on the subject of casting. I can assure you of my appreciation. Most men, I think, who have given to the profession a method which has so completely revolutionized all of our former procedures would be contented with that, and would rest easy upon their laurels, but you have observed today that even this has not satisfied Dr. Taggart, because he wanted to show you how it can be done more scientifically than most of us have been doing. I will venture the assertion, that notwithstanding the fact, that all of us are doing casting to a greater or less extent, no two of us proceed alike.

In a discussion only last night with eight or ten different dentists upon this subject, I ascertained that no two of them proceeded alike in the heating up of their wax in the investment, in the casting of the case, or in the alloys used for the casting. There must be a best wax; there must be a best investment material; there must be a best method of casting, and there must be some alloy which will be better than all others, and yet we are all using different ones. I can remember distinctly when Dr. Taggart first showed me his hard wax which he uses and gave me half a stick of it and said, "Goslee, take that home and use it, and see what you can do with it." Very much to his surprise, when I met him the next time, I told him it was no good, and I could not use it. I saw discouragement written in his face as the result of my remarks. With his usual patience he said, Did you use it exactly as I told you to do? And I said, Yes, as nearly as I could. He said, How did you use it, and I told him. He then replied, That is not how I told you to use it at all. You take this other piece, use it *exactly* as I told you to use it, and then let me know what your opinion is. I did, gentlemen, and I do not know how I could get along without it, because it is not perceptibly affected by the temperature of the body, an advantage apparent to all, and it is an absolute necessity because if a wax that is used for this purpose is affected by the temperature of the body it will draw, and if it will draw at all in removing from the cavity imperfection must result because the finished product cannot be any better than the original model. I fear this is not appreciated as it should be.

In the same discussion to which I have referred, I also learned that every man used a different metal for his fillings, some use twenty karat gold, some twenty-two karat gold, some pure gold, some three per cent of platinum in pure gold, and some even a higher per cent. The results obtained by all of them so far as they knew, were perfect, and yet I take it, and I think I can prove it to you, there is some one metal or alloy which will cast better than another. We have not yet reached the degree of perfection that many of us think we have, and Dr. Taggart is trying to lead you along scientific lines so that you will work out the problem yourselves in the hope that you will get a maximum of good results.

I would call attention to the fact, that many of the fillings which we think are perfect when we put them in the mouth are not perfect. If you want to prove that, make a cavity of different proportions in a tooth out of the mouth, and make several fillings of different alloys and try them in the cavity and see how they fit; yet I am confident it is possible to develop a technic which will insure perfect results, and Dr. Taggart is giving us encouragement in that line.

I am sorry, gentlemen of the dental profession of the city of Chicago and of the State of Illinois, that we are going to lose Dr. Taggart from the number of those in the active practice of our profession. I thank you. (Applause.)

Dr. W. D. N. Moore, Chicago:

I have been a warm admirer of Dr. Taggart especially since he brought out the process of casting, and I do not know of anything that I have more admiration for than a man who is able to enter into the small details that have culminated into such a great process that he has dealt with today. While there are a great many things we do not understand about casting, and a great many that we have some idea of at least, I do not pretend to speak upon the scientific side of it because few of us know a great deal about it. But what Dr. Taggart calls scientific, and properly so, I term accuracy. If there is any one thing more than another which seems to permeate the very fiber of this man Taggart, it is his mastery of the little details, and that is what we have got to do to get accurate results in casting. We are told that it does not make much difference how we use the investment, what wax we use, and the material for casting. Gentlemen, it does make a great difference, and while I do not believe in being a parrot or in following any man too closely and not developing the thinking powers of our own, I want to tell you that up to the present time the method Dr. Taggart has given us gives us better results than the haphazard one so much in vogue at the present time.

The opinion seems to be more or less prevalent that a less perfect technic is required and less exactness in cavity preparation for gold inlays than for foil fillings. This is a mistake. You cannot fit a good inlay to an illy prepared cavity any more than you can expect a good result from a foil filling in a cavity badly prepared. The same holds true about a good investment, and the control of the investment from start to finish. You may mix it well, you may manipulate it in that respect properly, but unless you carry it properly to the final finish you have not done yourself the justice you should in getting the casting. In the simple matter of heating it up, if you melt the wax out rapidly, it bubbles up through the sprue hole, and you will have an inlay that is a mass of elevations, and so on from investment to the gold.

I made up a number of inlays for some cavities, using pure gold, using old bridges, using coin gold, using platinum and gold, and so on, and I agree with the essayist when I say that you can get the best results from pure gold. But you can handle any of these metals so as to get a different result each time. While there is a whole lot to understand regarding metallurgy and chemistry that will control and give us better results, and are to be discovered and worked out, yet the technic is an important part. For instance, I can show you a fairly good inlay for a cavity that has not been touched with stone or disc, where one sprue has been used. I can show you a better one where two leads from that sprue have been used for bringing the gold into the inlay flask, and that in a case that has three surfaces of inlay in a molar where you have a long stretch from one gingival wall to the other. Things like this do enter into this feature of it more than the science of chemistry or the metallurgy part of it. It is a case of trying to control or adapt the peculiarities that each one of these metals possesses. He spoke about the different golds for that reason. We can put anything into a cavity, and we do not need to buy twenty-three karat gold; we can put silver and other things in the cavity, and I do not know of anything that has done casting greater harm than the carrying out of that idea. There are certain things that are very objectionable about pure gold. For instance, if you have to restore a large occlusal surface of a molar or a bicuspid, where there is heavy stress of mastication, pure gold will not stand and do the service it should. In fact, in some cases I have been ashamed to recognize some of the inlays that have come back after six months, pitted, riveted over on the edges, and scratching the patient's cheeks. Such an inlay is not giving a patient the service it should give. If we put in fillings of that kind and charge up to $100 for them, we must have a metal which will stand the stress better than pure gold. Dr. Taggart has recommended copper. Some have recommended using gold with zinc and even old bridges. Now, I was opposed to that kind of thing, but it is surprising how well an old bridge will cast, and Dr. Taggart saw the experiment I made, and I found that the poorest kind of old bridge casts better than coin gold containing copper. I was surprised to see that, and I was likewise surprised to see what technic would do. I doubted it, in spite of what Dr. Taggart said, until I satisfied myself otherwise, that gold alloy up to five per cent of platinum has given me the best results. You can carry the alloy of platinum too high, to ten or fifteen, which has too much platinum to get the character he has described. But I like the platinum better than copper, in spite of what the master has said in favor of the copper.

I congratulate this society and also Dr. Taggart on the paper he has given us, and I am sorry that we are going to lose him in a professional way.

Dr. G. W. Dittmar, Chicago:

This subject ought not to be passed without further discussion. Somehow I do not feel at all like Dr. Goslee and Dr. Moore regarding Dr. Taggart. I feel that he has been for these many years our friend and will continue to be our friend, and that he is going to do much more for us from now on than he has ever done before. This is not his swan song at all, we never want to hear it. Dr. Taggart will live as long as will dentistry.

There are a few technical points in this discussion which ought to be elaborated, but I am not going to take the time to say much about them.

Regarding Dr. Taggart's investment material, I want to say this: I never got such beautiful results in casting before I used this investment material. The smoothest, nicest, best fitting castings I have ever made, have been made with the use of this liquid investment material. I have tried in the past to be a close follower of the technic given us by Dr. Taggart. I have been in his office many times, he has shown me many of his "stunts," and I have learned much.

Regarding the burning out of the wax, there is just one point I would take exception to. Dr. Taggart told us that after he places the investment in his automatic dryer, just before he leaves the office in the evening, the investment will be ready to cast into the next morning. I have done this without the use of the automatic dryer. I have told the girl at the office before she went home to turn out the bunsen after the case was well burned out. In trying to cast the next morning, I have not gotten the results I expected. During the night the humidity of the atmosphere had permeated the investment material. It was slightly damp, and I did not get good results in making the cast. Just as quick as the flask has become cool again so that you can handle it with your fingers, is the best time to make your casting; make it just as quick as the investment is dry and cool.

Regarding gold, I feel like Dr. Moore, I seldom use pure gold. I think, as a rule, we get the nicest fitting inlays with pure gold, or at least we can make them fit nicer if they are not exactly right, because of the softness of pure gold, which readily permits of burnishing. Under stress, however, it batters considerably. I use it only in places where there is not much stress. I like the alloy of platinum, although Dr. Taggart objects to it.

In the use of the Oxyhydrogen blow pipe, I believe we frequently overheat gold alloys, and as I said once before, I wish Dr. Taggart would invent next some way to tell us when to draw the lever on his machine. I have heated gold so hot that it sputtered and looked white as the sun; it was too hot. There is a time just when the gold or alloy is the proper temperature when the lever should be drawn to get the best casting. Most castings I make of twenty-two karat gold.

Dr. Taggart (closing the discussion):

I have nothing particular to say except to refer to Dr. Dittmar's proposition about his investment absorbing moisture and his not getting a good casting the next morning. The chances are that his office girl was just as anxious to get home the night before as he was, and the case was not burned out properly. (Laughter.)

In regard to the use of pure gold, I will return for a moment to the mechanical side: the results I have been able to obtain in my office in the cases of patients who have paid me for my services have been through the use of pure gold. I will experiment along other lines, but my paid for fillings are pure gold, and it does seem queer to me, exacting as I try to be in my own office, and looking at the matter from the most critical point of view, that I should get pure gold in such a condition that it gives me satisfaction enough to use it in so many cases, and the rest of you do not.

One of the strongest arguments in favor of pure gold is the one that Dr. Dittmar and Dr. Moore presented as being against it. What is that? The fact that they talk about battering down of high points shows that they have not articulated properly, or there would not be a high point. (Applause.) If by accident they do leave a high point, what does pure gold do? It does something that alloy gold will not. It will batter and get out of the way. You take an alloy gold and it is so hard that the occluding teeth will not make an indentation on it that you can see at the end of several months unless you get the right kind of light, and any real movement of the gold you cannot see. What has happened in these two or three months? The teeth have become sore and uncomfortable and the patient will say to you, "Doctor, I do not think the inlay is quite as comfortable as the old-time filling." Whereas, if you had used pure gold, in that two months it would have adjusted itself. The general surface wear is sufficient to take care of it.

Dr. Moore:

For a simple filling I would use pure gold. What would you do Dr. Taggart when you want to use an inlay for the abutment of a bridge, that is, to get the tonicity, the stiffness that is required? For a simple filling I use the pure gold, much as I dislike the battering.

Dr. Taggart:

I have not advocated the use of pure gold where the stress is greater than the individual stress of one tooth. I am speaking of gold inlays proper, and that is why I alluded to the differences in strength of alloys when you cast larger pieces. You have got the tensile strength there that is necessary in a certain kind of filling. Pure gold, if you will stick to it for the individual teeth fillings, will give you better fits, that are more comfortable for your patients, and you will have a clearer conscience in using it.

DISCUSSION OF THE PAPER OF DR. C. B. ROHLAND, ON "A FEW RANDOM THOUGHTS."

DR. L. B. TORRENCE, Chester:

Mr. President, and members of the Illinois State Dental Society: It is somewhat embarrassing to me to be called upon to discuss a paper like this. We have all, at least most of us, gone through experiences similar to that narrated by the essayist, and we have also had the same misgivings as to whether or not we are adapted to our vocation, and also as to whether or not it has paid.

When we look around among the members of the profession and take an inventory of their financial standing, we find men who have grown gray, aye, even to a snowy whiteness, in a long and faithful service to an unsympathizing public, and yet should they happen to become incapacitated to perform their daily labor, they would find themselves humiliated to the degree of facing actual want. But I believe I am warranted in making the statement that dentistry as a profession is not only commanding more and more respect from the laity, but that we are also getting more firmly fixed on a financial basis that will at least keep us from dire need, if not also leave us a competency that will prove a comfort in the evening of life.

It has been tritely said "That appreciation of yourself must be born of yourself." If dentistry has been cheapened in the past in the eyes of the public, then dentistry alone is responsible for that fact. A profession makes its own reputation, just as surely as does an individual. Like the subtle thing which we call character, it is being daily builded, and if placed on a solid foundation, and the proper materials are used in its construction, the result will be impregnable to the onslaught of either the ignorant or the unappreciative.

As for motives that cause young men to enter our profession, I agree with the essayist, that they are in the main commercial. Of course, there have been a few notable exceptions to this human trait of character, but they are notably few. As the leopard cannot change his spots neither can we change the motives of man, but we can so modify those motives by the uplifting power of proper education that they no longer become obnoxious, or dangerous to the dignity of the profession.

The dental college of today is the great educator and uplifter of the pliant minds of these young men, and no matter what their motives may have been on entering its portals, they will not be permitted to leave them without having been duly impressed with the duties they owe to themselves, to their profession, and to the public. The essayist hits the nail squarely on the head, when he says, "They study and are influenced by the precept and example of those to whom they look for instruction." But after graduation then what?

These self-same students that are taught in college to regard all members of their profession as brethren go out into the world to hunt some suitable location to practice. In nine cases out of ten I fear they will now have their ideals very rudely shaken. It has been twenty years since your humble servant set out on this mission, but some of the lessons of the inhumanity of man to man, were so indelibly impressed upon his memory that the remembrance of them today is as if it were yesterday.

I am confident that the conditions are vastly different at this time as compared to then. In our state through the educating influence of our powerful state society, men are being drawn more closely together and are more nearly living up to the injunction, "Love thy neighbor as thyself."

While the colleges furnish the raw material for our ranks, it is up to us, the practicing dentists of the state, to take this raw material and season it into an unchanging army of ethical men. And while, like the poor, I presume the unethical will always be with us, it is to our interest, like the state's, to reduce this number to the smallest possible figure. I believe with Mr. Walter Malone, that, "No shamefaced outcast ever sank so deep but yet might rise and be again a man."

Another keynote struck by the essayist in the paper is the tendency of our profession to rush to extremes. We have always been extremists, fadists, and men of one idea. But here also the influence of a liberal dental education as instituted in the colleges, and continued by the dental societies is working a wonderful change.

I can remember the time when it was not unusual for someone having an elite city practice, to boast within the hearing of some of the country practitioners, that he never filled a tooth with any other material than gold. That was his fad, his hobby, and he was continually riding it, and prancing it up and down before us, until we were green with envy. Such equestrian exhibitions are no longer given, for the reason, that the audience would not remain to see the curtain go down on the first act.

The audience has been taught that each material used for filling purposes has its selective field of usefulness, just as much so, as do medicines have their selective field of action.

As to the business propaganda mentioned by the essayist, I believe that this will result in much good, but no matter how much of this kind of literature we read, it cannot be productive of good, unless we apply it.

The father can take his son and give him a classical education, and follow that up with a business education, but the real test of that son's success comes when he is called upon to assume the guidance of his own personal career. And if honesty, thrift, and economy have been made a part of his real self, then can we confidently hope for a successful and brilliant future. He should be taught to believe that labor has a sure reward. To believe it with an ethical sense of duty to our patients, our profession, and ourselves. This done and I believe we will in the end be able to answer the young lady's question, and tell her that it did pay.

This, Mr. President ends my discussion of the paper, but I feel that I would be ungrateful should I resume my seat without saying something in tribute to the author. It may not be just in line of a discussion of the paper, but I earnestly hope that no member will raise a point of order, for I am sure that no one who ever knew this noble individual of God's own image, but feels that he has been benefited by having been within the sphere of his influence.

In this human life of ours, thrills and sorrows are strangely blended. No object catches the sun's light upon its face, but a shadow lurks beneath. No mountain lifts its peak toward the heavens, but a dark chasm yawns beside it. No day dawns that does not leave the trail of a night behind. Each and every happiness, in time, gives place to sorrow.

In this busy world of ours we are prone to forget past obligations and to live only for the present or future. But, my friends, as we have been honored by this man, let us honor him in return. And yet the thought arises what can we say to fitly eulogize this manly character.

This quiet and unassuming man, who for years had been an acknowledged leader in dentistry in Illinois, and particularly in Southern Illinois, had characteristics peculiarly his own, and reached ideals but few can hope to attain. While he was exacting of his friends, he was even more exacting of himself, and there has never been a time when assistance was needed that he did not stand ready to lend the helping hand. Often it was volunteered, not obtrusively, but with the quiet gentleness and sweetness of the dew of heaven, falling unseen and unfelt, leaving a freshness glistening in the dawning sunrise of a new morning's glory. It is with the deepest feeling of sorrow that we write the name of Charles B. Rohland upon that sacred monument dedicated in our memory to the loved and honored dead.

In our admiration of his splendid character, and remembering how like an exhaustless fountain of information and inspiration he was to each and all of us, we must sincerely lament the separation, but though his voice be stilled in death, his influence has lost none of its potency, none of its power to thrill, to stimulate, to move.

The years are dotted with the bleak spots of death, and a wilderness of little mounds to tell us where the dead are lying, but indistinct is the voice of every tomb in which rests an unknown, as compared to that of the sacred mound where a friend lies sleeping. Clustering about the flowers that are blooming there, mingling with the oppressive silence that shrouds the revered spot, the holiest memories speak in tones that fill the ear and thrill the sorrowing heart. All that there was of the life that has gone, its purity, its usefulness, its loyalty, its integrity, stand out before us in bold relief.

The tread of our foot-steps disturbs him not, his sightless eyes cannot see the anguish depicted upon our faces, no sound can penetrate his ears, and yet it satisfies our souls to tell him how much we loved him, and how deeply we mourn his absence from our midst.

May his sleep be peaceful, his awakening crowned with eternal joy, in the realms where the flowers never fade, the sun never goes down, and separation is no more. "None knew him but to love him, none named him but to praise him."

Dr. E. K. Blair, Waverly:

Mr. President, ladies and gentlemen: I knew Dr. Rohland for many years. I have been very much gratified this afternoon to hear the paper read by Dr. Johnson, possibly the last one written by our esteemed friend and neighbor, also the discussion so ably opened. I would not allow this opportunity pass without adding a word to what has been said. The memory of Rohland is so sacred that it ought to be cherished and respected in the greatest possible way. Let me add my word of commendation for his character, for the influence he has cast in this profession and in the community in which he lived. Let us hope that hereafter someone may take his place. Truly, not many can do it.

Dr. T. W. Pritchett, White Hall:

I did not expect to be called on to say anything on the passing of Dr. Rohland. The word reached me by telegram while in Chicago attending a meeting of the Dental Board. It was the hour agreed upon by a goodly number of his very close friends to assemble for holding a special meeting with the Board in a nearby room, so but a few minutes time had elapsed until all were made aware of our unexpected loss. Although it was known to a few that his health was seriously impaired no one was prepared to hear of his journeying from us so soon. 'T was as the coming of a thunderbolt from a clear sky. All expressed themselves as profoundly grieved at the sad news.

I attended his funeral. Our personal relations were more intimate than with any other of my dental associates. I visited him often and he visited me. We were exceedingly intimate, and it has taken me all this while to be convinced that we will see him no more.

I can say no more than to express my belief that he sleeps well in the brow of Alton's hill—hills that he loved so well.

Dr. E. M. Robbins, Carthage:

I, too, knew Dr. Rohland for many years. He was a member of the society when I joined it. When I heard of his death, it seemed to carry a pain to my heart, and so I feel that I cannot sit here and allow this paper to pass and this opportunity without dropping a rose on the bier of a character so lovable, a man so true, and one so valuable in his profession. While he is dead, he still lives and his memory will ever be cherished by those who knew him early in the life that he passed among us.

Dr. G. D. Sitherwood, Bloomington:

I desire to add a word. Dr. Rohland was one of the familiar faces in the meetings of this society. My heart was much moved as I have listened to these words, grateful words, of his blessed work. I have thought of the story that is told of an old gentleman who lived in comfort and peace in the state of Missouri. A friend rode by on a beautiful day as he sat under his fruit trees, and this friend said to him, "Do you expect to go to heaven when you die?" "Why, no. I am in heaven now," meaning that heaven began here with him, and that death was only a separation. I am sure I feel that way with regard to Dr. Rohland. It was mentioned by Dr. Cormany that Dr. Rohland was a fine musician, and that he loved music. I knew that also for many years. I talked with him about music and the love of music, and I believe that in the other world he is enjoying music of a higher sphere than this. Peace to his memory, I feel that it is a great privilege and pleasure to have known such a man as Dr. Rohland.

Dr. Arthur D. Black, Chicago:

In view of Dr. Rohland's almost constant attendance upon the meetings of this society for nearly forty years, it seems it would not be inappropriate for the society to send some message to his family at this meeting, and I therefore make a motion that the President or the Council of the society be requested to take whatever action seems most fitting.

It is probably not known by most of the men present that the paper read here this afternoon by Dr. Johnson was one which Dr. Rohland started a few months more than a year ago with the intention of reading it at last year's meeting of the society when Dr. Dittmar was chairman of the program committee, and he canceled the reading of the paper on account of the condition of his health.

Motion seconded and carried.

Dr. Truman W. Brophy, Chicago:

Dr. Rohland's long membership in this society brought to us a wealth in literature and in thought which elevated our membership. As my memory goes back over the years, I think how poor we would be had it not been for the services of the men who have left us this great heritage to enrich our dental literature. Read the transactions of the Illinois State Dental Society; look at the names you find, and among those who are prominent, and who have contributed to this society, you will find the names of Cushing, and Dean, and Swain, and Judd, and many others, down to the time of Rohland. All these men belonged to a high class and had the capacity to bring to us that which we needed. So I repeat, we would be extremely poor were it not for the richness of the lives of these men. Dr. Rohland lived a life which any young man might emulate to his advantage. His thoughts have always been beautifully expressed, and he had a merry humor which made his articles interesting and always delightful to hear. We have practically heard him today, although gone, and the spirit of Rohland is with us and will be with us through the years. The words of Tennyson apply beautifully to him:

> "Oh, for the touch of a vanished hand,
> For the sound of a voice that is still."

Dr. Johnson (closing):

I think those who followed the paper closely may have noticed that it was never finished; that practically it must have been the last written utterance of Dr. Rohland.

The only thought I want to leave is a message to the young men of the society. I never see a life which makes such an impression as the life this man lived without appealing to and thinking of the young men. They should take cognizance of his life and work, for such a life is worth striving for by every young man in this society.

DISCUSSION ON THE PAPER OF DR. G. V. BLACK.

Dr. Truman W. Brophy, Chicago:

Mr. President: The essay that has been read this evening is a valuable contribution to our literature on the use of antiseptics. It has seemed to me for a number of years that in the treatment of fresh wounds, the use of drugs was a procedure unwarranted. Since coming to this meeting, a member of the profession made a statement to me that in a camp or a club in some place it was the practice whenever one received a wound of any character, either large or small, to pour agents into the open wound with a view to enabling it to heal. When I hear the word remedy used, I am reminded of a statement that used to be repeated very frequently by Dr. James Adams Allen, formerly President of the Rush Medical College, in drawing a line of distinction between a remedy and a drug. He said that a remedy is an agent that will assist in bringing abnormal parts back to normality. Any drug which does not do that is not a remedy. And so the gentlemen employed in this camp used peroxide of hydrogen, pouring it into the wound with a view of preparing it to heal. We all know what the effect would be, to destroy the new forming granulations that occur a day or two later, where nature is struggling to bring about the process of repair, and such an agent or any other agent that would destroy the new forming granulations, or would paralyze them or anesthetize them, would be, instead of a remedy, a poison, and would prevent the healing of the wound rather than assisting nature in bringing about the union of the parts, and so the application of drugs to wounds often times is absolutely detrimental to the work of nature in healing them. The essayist has put this before us very forcibly and clearly. Sterile water applied to a wound is sufficient to rid it of anything that may be there and prepare it so that union will take place.

The use of saline solution has been dwelt on, and when properly prepared in the usual form, normal salt is not objectionable to use. To use phenol in five per cent solution is objectionable as the essayist has point out. It anesthetizes the parts. It thereby delays union, as the essayist has pointed out so clearly, something like fifteen days, the same as when iodin is applied to a wound. What is the first impulse of the surgeon who comes in contact with a suppurating wound? Is it to put some drugs in it? It should be to get rid of the pus, remove it with sterile water, or anything to get rid of this objectionable material, and then make the wound sterile, if possible. How many things have been used for that purpose? In the early history of the society members would stand up and advocate the use of the ninety-five per cent solution of carbolic acid in the treatment of dento-alveolar abscesses, and these abscesses would get well provided they were not complicated by carious bone or necrosis or other complications. But in many of these cases recovery would have taken place with greater rapidity if the infectious material had been removed and the wound made clean without cauterization. I have found in the management and treatment of wounds that it is necessary to keep them clean. In hospital work. when plastic or other operations are done where openings through the skin are made, it is a common practice, after thoroughly cleansing the surfaces, making them as clean as possible by thorough irrigation, to paint the area where the incision is to be made with tincture of idoin. This is not going into a fresh wound, but cleansing the surface and preparing it for the incision, and when the incision is made through a surface like that, and the parts brought in contact with immediate suture, infections do not occur. If they do occur they occur by reason of infection that comes from within and from the center, as in a suppurating mass beneath. As to the use of antiseptics and disinfectants, there is a marked difference between the two in destroying pathogenic micro-organisms, and in many instances the wound will be retarded in its healing. In the use of adrenalin chlorid as a means of controlling hemorrhage from a wound, it never does quite as well as other agents which may be used, for the reason the essayist has pointed out, namely, the parts by the action of the adrenalin chlorid are paralyzed, so to speak, for the time being. The physiological activity of the tissues is disturbed and the process of repair is retarded by reason of that action. They have, in a measure, lost their tonicity. The nerves supplying the parts become less active and so the process of union is thereby interfered with or retarded. Any of the other agents, like nitrate of silver solution, protargol, argyrol, when applied to a wound, will retard to some extent the formation of granulations and their activity to repair. Bichlorid of mercury in weak solution also will do the same.

In his work on surgery and in his experience in operative surgery, the late Professor Senn pointed out the value of iodin in a most impressive manner. He demonstrated that in wounds that were actually suppurating, where other agents had been given prominence in the list of remedies, nothing equaled idoin. In examining a young man who sought a position in a regiment in Chicago, as a surgeon, which was conducted in the Presbyterian Hospital about a year before, he was asked to name some of the most powerful germicides. He named various agents—bichlorid of mercury, phenol and other agents, nitrate of silver preparation and there he stopped. Professor Senn said to him, "Do you know of any other?" He said he could not think of any other, and Professor Senn replied, "You must thing of one other, the most potent agent known for the purpose, which you have not yet named." The young man could not name it. Professor Senn then said, "The strongest and most active agent in the destruction of pathogenic micro-organisms is iodin. Remember it." It was he who proposed iodin in combination or in connection with iodid of potassium, one part of each in ninety-eight of water, and Professor Senn used that in treatment of general peritonitis after operation upon the abdominal viscera. He found that when the solution was used liberally in cases where there was general infection of the peritoneum, the patients would recover more promptly and more frequently than they did prior to the use of this remedy. Today it is not used so much, and yet it is a most valuable remedy.

As to the application of heat, if we were only to study pathology carefully and learn the value of heat, as the essayist has pointed out, in the treatment of morbid conditions, we would be able to accomplish much better work. Hot applications over a part that is found in abnormal condition become a potent factor in bringing the parts back to normality.

The essayist referred to the treatment of dento alveolar abscesses, and I will close my remarks by calling attention to the way in which I advise my students to treat these conditions. To reduce an abscess to the greatest degree of simplicity, instead of puncturing the abscess and then injecting something into it let it be reduced, if possible, to the simplest form of treatment; and how would you do it? The essayist has spoken correctly about the value of removing the cementum which has been destroyed by disease, and where the end of the root of the tooth has been deprived of all its membrane, the importance of removing it as a means of restoring the part to a healthy condition. (Here Dr. Brophy went to the blackboard and demonstrated by the use of diagrams his method of treating dento-alveolar abscesses.) What are you going to do when the pulp is dead? You have opened it and cleaned it out, the abscess does not get well. There is destruction going on in the bony wall. Would you puncture this through the sinus and inject it? If it does not get well within a few days, it is not likely to get well by injections alone. You must do something else. The method I pursue in treatment of a case of that kind is to make an opening. You reduce it to the simplest possible condition, and it will get well. Cut off the end of the root, leave a saucer-shaped opening, so that when the cavity is treated that will be the condition. You will not deface the parts to produce in any sense a disfigurement, but the granulations will fill this up and the patient will get well without injecting it and washing it out every little while. These abscesses should be opened up freely, and then they get well quickly and satisfactorily. In conclusion I wish to say that a paper of this kind is extremely important. It has dealt chiefly with the subject of therapeutics, but if there is any subject in my judgment which needs more consideration on the part of the members of the dental profession than any other it is the subject of pathology. We come to these meetings, we seek the clinics, we want to know all we can about the advances in inlay work, in crowns and bridges, and porcelain, irregularities, and so on, but how many members of the profession come to these meetings having in mind the most important of all considerations, that is the physical condition, the diseases of the patients that you have constantly to treat. I hold that the most important subject before the profession of this country is that of pathology, and I feel I am not going too far when I say that it is a subject the least considered of any subject pertaining to the dental profession.

Dr. John P. Buckley, Chicago:

I have enjoyed this timely and valuable paper of Dr. Black. I have enjoyed likewise the scholarly discussion by Dr. Brophy. Personally I shall be as brief as possible. In the first place, I want to define some terms in order that we may be clear in our minds. As Dr. Brophy has said, there is a difference between an antiseptic and a disinfectant. There is a difference between these two classes of drugs and a poison. One drug can be used in a certain strength of solution, as an antiseptic; that same drug can be increased in strength and act as a disinfectant, and if increased still more in strength, it will act as a poison. An antiseptic is an agent which inhibits the growth of micro-organisms, and it lessens their activity, keeping it temporarily in abeyance, but activity will return when the restraining influence is removed. A disinfectant is an agent which, coming in contact with the germs, does not simply lessen their activity, and inhibit growth, but kills the germs and destroys their by-products. There is no real difference between a germicide and a disinfectant, and for that reason I have myself discarded the term germicide, preferring the term disinfectant.

Now, there are two ways by which we can think of a poison. If we are thinking of it from a legal aspect, the lawyer would define a poison as being an agent which when administered, causes death. On the other hand, the scientific investigator says that a poison is an agent, whether mineral or organic, which if applied or administered to the human organism interferes with the functions of life; it may cause disease, and it may cause death. Now, with these definitions clear in our minds, I want to refer to some of the statements made in this paper.

My ideal of an antiseptic is an agent that acts only an as antiseptic; an agent that will inhibit the growth of bacteria and at the same time will stimulate the activity of the animal cell, thus promoting phagocytosis.

Whenever I think of an ideal antiseptic, I think of two agents, and one is oil of cloves, and the other is idoin, and I am afraid from the experiments to which Dr. Black has referred where tincture of idoin was used on a wound, and the process of healing was delayed sixteen days, in comparison to a similar wound, which was treated by saline solution, you get an impression that all you need to do is to keep a wound clean, and that you ought not to use iodin in the treatment of suppurating wounds. I hope you will not leave this hall with that idea in mind. That man should have known better if he was a modern scientific man, than to expect a wound to heal readily with the use of tincture of iodin. Tincture of iodin consists of seven per cent of iodin dissolved in alcohol, and if he had taken out the iodin and applied alcohol to that wound, he would have delayed the process of healing. Tincture of iodin applied to the mucous membrane in some mouths will produce a blister. Applied to the skin, it will produce desquamation, and so this man has used a preparation of idoin which when applied to a raw surface is a poison, and, of course, he would interfere with nature's process of healing a wound. He has delayed the process of phagocytosis. If he had used Senn's solution, or if he had used dilute Lugol solution, a five per cent solution of idoin dissolved in ten per cent of potassium iodid, he would have found that Dr. Senn is correct; that iodin is one of the best agents, if properly used—and we use many drugs improperly—that can be employed in the treatment of suppurating wounds. Dr. Black quoted from the original investigator, where he said the healing of the wound was delayed sixteen days because of the use of an antiseptic. That is incorrect. It was not delayed because of the use of iodin as an antiseptic, but because of the use of iodin as a poison, or because the use of iodin in such a strength acted upon the tissues as an escharotic. If that is true, that experiment does not prove that we cannot use iodoform with success in treating these conditions if we do not care anything about its odor. It does not disprove the fact that aristol and the synthetic substitutes for iodoform are useful agents to be employed in the treatment of suppurating wounds.

In the treatment of chronic dento-alveolar abscess the use of saline solution is valuable. As Dr. Brophy has pointed out, the use of any bland solution is valuable. There ought to be a rule in connection with the treatment of dento-alveolar abscesses that should be written in our text-books in red ink, and that rule is this: Wherever you have pus, it is a thousand times better, if it can be done, to mechanically evacuate that pus rather than depend upon some chemical agent for its destruction. When you have a suppurating condition coming from a dento-alveolar abscess, you ought to use a bland solution, and normal salt solution is good. Distilled water is also good, or peppermint water to which one-half per cent of phenol is added. One-half of one per cent of phenol will not coagulate the ablumin in the tissues to any perceptible extent, whereas five per cent of phenol will. But if you add two minims of phenol to an ounce of peppermint water, it will taste better in treating a chronic dento-alveolar abscess, and it will not interefere with the process of healing. We ought to use these bland solutions liberally, where we are sure a sinus is well established. One reason is to mechanically wash out the pus, and the longer you stay there, as Dr. Black did, in washing out all that pus, say for fifteen minutes or more, using this washing process also in the treatment of gingivitis, or in diseases of the peridental membrane, washing away the debris and everything that can be removed by this washing process, the better it will be. If we do not have a sinus we ought not to use a bland solution.

Drugs have been misused. The paper might have been called the use and abuse of antiseptics. We ought not to use a drug for any other purpose than to aid nature in overcoming the pathological condition. If we expect drugs in themselves to bring about healing, they will not do it.

I want to refer to one statement. I have been trying to find out for ten years, and I think I am going to find out now if Dr. Black will tell me, what he uses to neutralize the intermediate and end products found in the tooth structure in a putrescent pulp or an alveolar abscess. In his paper he carefully avoided naming the antiseptic.

He says that he mechanically washes out the pus, and then he uses an antiseptic that he selects, a very small quantity of which is sealed in the canal. Dr. Black, will you tell us what antiseptic you use?

DR. BLACK: Oil of cloves is used. I use more of that than anything else. I also use one-two-three sometimes.

DR. BUCKLEY: And Dr. Black goes on to say that he does not expect complete sterilization. These are not his exact words, but he said that he could not completely sterilize that tooth structure with any remedy at his command. Now, I cannot let that statement go by unchallenged. There is a remedy with which you can completely sterilize that tooth structure, and you do not need to be afraid to use it either, because of getting a sore tooth or a weeping condition. I mean formocresol. It is a dangerous procedure, especially in the hands of a student, and it is always an unnecessary procedure, when you have septic material in the canal, with no infection in the apical area, to attempt to mechanically remove the contents of the canal without first neutralizing the toxic properties of the contents. I know it can be done, but I repeat that it is a dangerous procedure and always unnecessary. After the first treatment in a case of chronic dento-alveolar abscess, after the pus is mechanically evacuated, in that particular case you can use a disinfectant, not an antiseptic. No agents, like oil of cloves or Black's one-two-three that are antiseptics only, are indicated any more than they are indicated in the sterilization of a broach or other instrument. In a putrescent root canal or in the treatment of an abscess a disinfectant is indicated, and I do not care what remedy you use, if it will kill the germs, and will not irritate the periapical tissues and not stain the tooth structure. In connection with salt solution, Dr. Black has not made his statement any too strong with reference to its value. He loves details. The average dental practitioner does not, and I think he has gone to too much trouble. He likes to do it. I like to do it, but most of you would not in making a salt solution, and you can get it just as well without so much detail. In quantitative analysis in chemistry you can make a normal solution of anything by taking the weight of the molecule of the substance expressed in grams and dissolve that in a litre of water (Here Dr. Buckley went to the blackboard and demonstrated how to make a normal salt solution without so much detail as described by Dr. Black).

Dr. W. H. G. Logan, Chicago:

I have listened with a great deal of interest to the technic of Dr. Buckley in making normal salt solutions, but here is a simpler way of doing it: I send to Parke Davis & Co. to furnish me with tablet No. 365. That gives you just the right salt. It is a tablet that contains 16 2/5 grains, which you put in four ounces of water, and the work is over with. You can make a fresh solution every day if you use it. It is easily done.

One of the best things Dr. Black spoke of, and which can be used to great advantage in pyorrheal pockets is normal salt solution, or Senn's solution, which is one to two hundred parts, or one to four hundred of the potassium iodid. That is sometimes beneficial to put in a pyorrheal pocket, and it is the strongest thing I would ever put in. Cease to use remedies, remove the deposit, remove the diseased bone from the alveolar process, and then let the patients use nothing but a normal salt solution, and they will stay well for quite a while.

Dr. F. B. Moorehead, Chicago:

I was very much impressed with Dr. Black's paper because, in the first place, he paid a splendid tribute to the great men whose work has made possible the discussion of this subject. I do not think we ought to let an occassion of this kind go by without paying our respect and tribute to such names as Lister, Pasteur, Koch and Metchnikoff, for we could not very well discuss this subject if men of such splendid intellect and devotion had not lived and wrought, for, after all, the great test of character is service, and a man lives only in proportion as he serves his day and generation. These great men live in your memory and in my memory, and they will live there to the end of time because they served.

The name of G. V. Black will live as long as civilization endures only because he is serving today. That is why. (Applause.) It is not because he is G. V. Black; it is not because of his father and mother; it is not because of his surroundings, but because the man is working for the weal of humanity and because of the fact he will live on and on through the years and be a benediction to mankind. I wish some of us might do as he is doing and be unselfish and consecrated enough to serve our day and generation and do something worth the while,

"Lives of great men all remind us,
We can make our lives sublime,
And departing leave behind us
Footprints on the sands of time."

Dr. Black will leave great marks, on the sands of time, because he is working, working, steadily working.

I wish in his paper he might have taken another step or spoken about another epoch in this question, and that is the development of the opsonic index, and gone on to mention the names of Allen, Wright, Welch and others. These men have contributed great things to modern medical science. We do not appreciate their work as much as we should. We are too close to the opsonic index theory to understand it or appreciate it, but, some day, great things will come to us because of that discovery.

Most of you have done some experimental work on frogs. Take for instance the Goltz experiment: In this experiment the animal is placed on its back, and each limb is secured by a clasp. The belly of the frog is tapped lightly and quickly with the handle of a scalpel, until the animal is in a state of shock. If you then place it in a bath of cold normal salt solution, you will observe how rapidly the animal recovers the power of motion. It is a simple but highly instructive experiment.

What is shock? It is a vasomotor paralysis. It is a dilatation of the vessels of the whole body. The blood pressure is greatly lowered. Now, if one can put something into the blood stream and restore normal pressure, he will quickly overcome the whole train of symptoms attributed to shock. What are they? Rapid feeble pulse; shallow irregular respiration; dilated pupils; vertigo; syncope; cold, clammy skin, etc., etc. A normal salt solution is introduced directly into the circulation—the blood pressure is restored to normal and all of the symptoms mentioned disappear. You can introduce it directly into the circulation and not get any ill effects from it.

In mammalian work, if you take a piece of heart muscle from a living animal, place it on a glass slab and wait until it ceases to contract; wait until artificial stimuli cease to influence the activity of the protoplasm in the muscle cells which have become exhausted, and then take a few minims of normal salt solution and apply to the muscle, and it will contract again. The vitality of the muscle will return in consequence of the stimulation of the normal salt solution. Take any type of muscle fiber, lay it down upon a glass slab, let it stand, until it no longer responds to stimulation; in the presence of cold physiological salt solution, contractility returns. Such results can be brought out by the use of no other agent. That is the best illustration of the value of normal salt solution. It is the best cell stimulant known. We say it is isotonic. That is a good term, but we do not fully understand what normal salt solution does to a living cell. It is something we have not learned yet, but it is hoped that some day we may.

Again, in the preservation of tissue, we know of no solution which will preserve tissue removed from the living organism for future use like normal salt solution. Furthermore, in the work of skin grafting, a skin graft may be removed, or a segment of skin may be removed, and placed in normal salt solution and kept for several hours, and when placed on a fresh sterile wound will unite again.

The use of normal salt solution in the treatment of burns is ideal. The modern treatment of burns consists of two things; the so-called dry treatment or moist treatment. If the part burned can be subjected to a normal salt bath of proper temperature, tissue repair is probably more rapid, and there is less scar-tissue than under other forms of treatment.

In the treatment of diffuse suppurative peritonitis, where the abdominal cavity is full of pus, and where it is impossible mechanically to remove the pus, that is, by sponges, or swabbing, and where antiseptics and germicides are contraindicated, a normal salt solution may be freely used to irrigate the peritoneum. A larger percentage of recoveries, in acute general peritonitis, results from the use of normal salt than from any other treatment.

The mechanical cleansing of wounds commends itself for obvious reasons. There is no form of treatment for suppuration which is so satisfactory as the mechanical removal of the pus. Any germicide which will kill a bacterium will kill a leucocyte; will kill a fixed connective tissue cell, and will kill an osteoblast. Any agent which will retard the growth of a bacterium will also retard the progress of a leucocyte or of a fixed connective tissue cell or an osteoblast. That is premise. That places our therapeutics on a sound and safe basis. Of course, there are limitations.

The general principle in the paper presented by Dr. Black is absolutely sound, and it is to be commended, but there are instances in the practice of medicine where you cannot mechanically remove pus. In the condition illustrated, where you have infection through pulp tissue working up and involving the periapical tissues; where through the peptonizing influence of bacteria and the liquifying influence of the fluids present, a cavity is formed, it is not possible —at least I cannot think it is possible—to sterilize those pulp canals, and the bone cavity above, without making an external opening, unless a germicide is introduced. Moreover, I hardly feel that one is warranted in resorting to surgical measures, except after therapeutic failure, and then it is proper. But you cannot remove the contents of a pulp canal or bone cavity (peri-apical) by any mechanical means. There is where we must use germicides, and I think quite properly so, and quite successfully. If we could mechanically remove the contents of a pulp canal by irrigating with normal salt solution and remove the debris and the pus and dead leucocytes in the cavity around the apex by the use of normal salt solution, it would be more satisfactory than any germicide or antiseptic. But I do not see how it is practicable for anybody to remove all the debris and pus from a root-canal by the use of normal salt solution, or do it mechanically in any way. For that reason we are simply compelled to use germicides, and I want to say this, that when we select a drug there must be a definite reason for its selection, and we should not put phenol, oil of cloves, thymol, tincture of idoin, and other agents into these cavities unless there are definite reasons or indications for applying them. And we must not indefinitely continue the application of drugs in the treatment of so-called dento-alveolar abscesses. A large percentage of failures is due to over-treatment: to the too free use of tissue-destroying agents.

I cannot understand why this man, in Chicago, performed a series of experiments in which he used the tincture of iodin in the treatment of incised wounds. Any man knows, who has ordinary common sense, that to place a concentrated solution of iodin in a freshly incised wound would render healing absolutely impossible, and I fail to see the virtue of the illustration. I cannot understand why the experiments were ever made, and I cannot see what he hopes to teach. To place an agent so potent as tincture of iodin in a freshly incised wound, and practically coagulate the approximal surfaces and then expect primary healing to take place, is out of the question. Healing will not take place until the leucocytes have carried the coagulated tissue away. I am willing to go on record with the staement that Iodin is one of the most valuable drugs in the United States Pharmacopeia, when used with intelligence and discretion. (Applause.)

DR. TRUMAN W. BROPHY, Chicago:

The remarks of Dr. Morehead bring to my mind something which I intended to say when I spoke a short time ago, with reference to the treatment of conditions where suppuration begins. This is a little personal experience.

I have had, as every man has had who is engaged in the treatment of disease of the oral cavity, especially in surgery, areas of infection here and there. In operation for cleft palate, in spite of all precautions, we occasionally get an area of infection which will begin along the line of union.

In my early surgical work, with the use of bichlorid of mercury, one part to fifteen hundred; with the nitrate of silver preparations, protargol, and argyrol, I was unable to bring about a cessation of that suppuration, but in these cases, and I give it to you as an experience which is very good testimony, the tincture of iodin applied over the area of infection would terminate that infection in twenty-four hours.

DR. BLACK (closing):

I have been very much pleased with what has been said, with most of it. Others have the same right to their opinions as I have to mine.

Very soon after Mr. Lister's experiment the whole medical profession became literally crazy on the subject of antiseptics, and in the years that followed I had a very varied experience in the use of them, with iodin, euchlorin, chlorin, and various other agents. We tried to check diphtheria. We tried to check throat symptoms in scarlet fever with these remedies. We used then the iodin solutions mentioned here this evening, and of the various solutions mentioned there has not been one that was known then we did not try, but wherever we used these things too many of the children died. I remember very well four in one family, and I have always felt that if I had used nothing some of these children would have lived. My feeling in regard to iodin and chlorin is that they are germicides of the most rabid kind, and because of that fact they are unfit to use on tissues. Their use to sterilize the skin is a different matter.

I did not say in my paper that I would never use a germicide in the treatment of a case in the soft tissues. I will relate one instance in which I used it effectively. During the war I happened to have some experience with pernicious gangrene. After sixty-nine we quickly learned what that gangrene was. A considerable time after that I was asked by a surgeon to see any of the more difficult cases that came to his place while he was away. He had not been away but a little while until I was called in to see a young man who had something the young man in charge had never seen before. It was gangrene of the foot, which, when once seen, is never forgotten afterward. There was a swelling of a dark color, distended with gas that crackled under the finger, and there was so much of that in this case that I said cut off the leg at once. It was done. Four days afterwards a spot almost as large as a quarter of a dollar was discovered in the flap. The patient was in no condition to have another amputation. I filled that tissue with a germicide in such a way as to destroy the germs, and the tissue for a considerable extent about that part, so that the whole thing sloughed out. It saved the life of the patient.

If a patient has a prick and I felt that it probably conveyed a germ that was dangerous, the killing of a portion of tissue is a small matter. That will get well after a while. If nothing was done the germ might destroy the patient's life. There are many places in which germicides should be used, but under the ordinary conditions as we have them in dentistry, we must be relieved from this. We have used antiseptics of too great strength. We had better leave them off altogether than to use them as we have done. Do not understand me that we have not done better work since we have used antiseptics, but we have mistaken the value of greater cleanliness and attributed it to antiseptics. There is where we have been wrong. I wish to rid your minds of the idea that these cures have been effected by antiseptics when, as a matter of fact, they have been made by the greater cleanliness that has been introduced.

With reference to this matter of making up salt solutions, I have been afraid to trust the capsules. I do not know that these capsules are sterile. I may trust them later. It is a very convenient way if I could trust them, but I would not put these capsules into my school where there are hundreds of patients being treated for fear they were not sterile. The salt solutions I have made up myself I can trust.

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held April 4, 1911, with Dr. J. G. Reid in the chair.

Dr. P. J. Kester read a paper entitled "Dentition as a Preventable Disease."

DISCUSSION.

Dr. Truman W. Brophy was asked to open the discussion. He said:

Mr. President and Gentlemen: Before coming to this meeting I had no knowledge of the subject to be presented, although I knew Dr. Kester was to be the essayist. The essayist has seen fit to present to us a paper covering a department of our profession which has, I think, been overlooked somewhat in the last few years. I remember very well some time ago he expressed himself very emphatically regarding the subject of teething and its influence upon the health of the child. It seems rather remarkable that medical men in the light of our present knowledge should speak of this physiological process as a disease. When teething goes on, as it should, it is purely a physiological process, but conditions sometimes arise that are perhaps more due to certain other systemic disturbances which bring about diseases among children that are undergoing this process.

In the work of the late Prof. James E. Garretson he dwelt at considerable length on the subject of the associated lesions of first dentition. He speaks of the diseases of childhood which occur during this process of dentition, and the chapter on that subject is a very lengthy one. Then he further proceeds and describes the disturbances which arise during the second dentition.

Formerly, I was of the opinion that teething was a process which oftentimes was attended by gastro-intestinal disturbances of children, and which was responsible for those diseases. I now believe that the gastro-intestinal disturbances are not dependent upon the process of teething, but are due to improper feeding. There is a lack of knowledge on the part of the parents, the mother, or the nurse, or the physician perhaps, of what the child should really have and how to feed it, although I can understand that dentition may under certain conditions be a fatcor in bringing about a rise of temperature and systemic disturbance that the old physicians regarded as due to dentition.

In my own experience I have seen infants or young children whose tooth development seemed to have been delayed from some cause, where extensive swellings would occur in the gum, and which, after taking off the tension by means of lancing, the teeth would literally pop out through the incisions and there would escape a considerable quantity of congested blood. This simple act of lancing the gums, as it has been generally termed, would relieve the nervousness of the child and allow the congested blood to escape, bringing to the patient a great deal of comfort. In such cases, which are rare, I think the general disturbances of children in the way of fever, when relieved, would assist to some extent in relieving the gastro-intestinal disturbance.

On general principles, however, I believe the majority of those children that have been classed as having the disease which the essayist is pleased to call "dentition," are not disturbed by reason of the dentition, but are disturbed from taking impure food or improper food. In my own experience in handling children surgically, I find that a very large majority of those who come to the hospital are ill from gastro-intestinal irritation, and when inquiry is made of the mother as to the amount of food that has been used by the child, it is evident to one of any experience in the feeding of children that it has been the food taken which has caused the trouble. But take the child and put it on modified milk or some other form of food, and it will soon recover from the intestinal irritation, the food agrees with it, and the child begins to thrive, its temperature goes down and it soon recovers its health and strength.

If I might be permitted to digress for a moment, I believe that the large majority of fatalities that follow surgical operations in infants are due more to the gastro-intestinal irritation which existed at the time the operation was made than to the effect of the operation itself.

Dr. Kester's paper has covered the entire subject of dentition. He might have, I think, gone a little further and pointed out to the people for whom this paper is more intended, the medical men, that they must drop the use of the expression, "dentition as a disease." They should not make use of that term, but look further and find out what the real disease is. Dentition is a physiological process the same as the growing of the hair or the growing of the nails, and that the records furnished by the municipalities in the report of vital statistics must be so changed that no report will be sent in that a child has "died of dentition," but that the child has died of gastro-intestinal irritation. I believe in ninety-five per cent of all of the cases which have been reported of "dentition as a disease" will be found to be really due to that cause.

I once made the remark to a group of medical men in a hospital that, seeing the condition of the children as they were generally brought there, I wondered how many infants managed to survive the kind of treatment they received in the way of feeding, and an Irish physician, who was present, looked at me seriously and said, "I have often thought this over myself, Dr. Brophy, and the more I think of it, the more I wonder how it is that these infants live long enough to go from the cradle to the grave."

I feel the society is greatly indebted to Dr. Kester for the time and effort and the research work he has indulged in to prepare this paper for it. I am glad indeed to have been here and heard it. I only regret that I am not able to say something more interesting and practical on the subject generally.

He has not entered into a discussion of any special disease except to enter what is really a righteous protest against the expression, "dentition as a disease." It is an unrighteous statement for any doctor to make, and no scientific man would speak of dentition as a "disease," but as a physiological process. Such a statement must come from men who are ignorant of the actual facts which lead to the mortality.

Dr. E. A. Royce:

I rise simply to thank the essayist and to congratulate him on the efforts that he has put forth in the preparation of this excellent paper, and on the manner in which he has started out to correct the incorrect reports of ascribing the cause of death of infants to dentition as a disease.

Dr. J. E. Hinkins:

I do not know that I can say anything of interest on this subject. I am glad Dr. Kester has written this paper, because it is timely. It would certainly seem from the authorities he has quoted that they do not know very much more about it than we do. During my practice of twenty-six years I have had a great many children as patients, perhaps more than grown up people, and my own observation has been that more disease has been brought on from poor nourishment of children in connection with dentition than almost anything else, and as I have done in connection with my colleagues quite a little work along the line of pure food, it is absolutely surprising to us to see how ignorant parents are and how poorly nourished many of the children are, and the large amount of impure food that is used, and when we consider these things it is really wonderful that the children of the present generation are as healthy as they are. Whether this is because of the impure food these children are fed, whether it is due to the ignorance of the physician or the ignorance of the parents, or the carelessness of the parents, is a question I do not know anything about, but as a whole, as I view the matter I agree entirely with what the essayist has said. I have enjoyed his paper very much, and I thank him for it.

Dr. George W. Cook:

This is a very difficult paper to discuss except in a general way. The essayist started out apparently many years ago to study the vital statistics on this subject, which to my mind is a very important thing, perhaps not so important to the dental profession, because we have little to do with the child at that age, but from the report of deaths from dentition as a disease, it seems to me that it brings up a very large and interesting problem in regard to how the attending physician regards dentition. Of course, as Dr. Brophy and the essayist have said, dentition is a purely physiological process, the same as the development of any other part of the body, and the other conditions that are incident or concomitant with the process of dentition must necessarily come from some other source. Something like ten or eleven years ago, in discussing this question with my brother, who had a great deal to do with children, I recall an instance which brought up the discussion. He was called to see a child that was very sick, and I was invited to accompany him. A few minutes after he entered the sick room and examined the child he made the statement that the child was dying. He had seen this child a few days before when it complained very little, and apparently he could not point to any lesion particularly. I said to him after we left the house, "What do you think the child is going to die from?" He said, "What do you think?" I replied, "It is not my place to think about this case because I know nothing about it." Shortly after the child died, and he said the majority of physicians would say that the child died from dentition. I said, "Do you really think dentition killed the child?" He said, "No, but what are you going to lay your finger on as the cause of death?" And I said, "I should say malnutrition." "Yes," he said, "but what causes malnutrition? This child has had all the things that seemed essential to its growth and development, and it immediately developed this condition in connection with the eruption of several teeth." I said, "Do you have any explanation of this?" He replied, "I think the explanation is simply this, that the child has acquired through the process of this dentition some infection of the intestinal tract that has been going on, and the eruption of the teeth is only an accompanying condition with the infection." A little later, when the Jackson Park Sanitarium opened up in the summer, following the death of this child, a laboratory was rigged up for the purpose of doing some research work in regard to the bacteriological findings in the intestinal tract of infants, as well as in the mouth, and all children that were ill in the sanitarium had their intestinal contents examined bacteriologically, and while I cannot quote just the published records on this subject, it was shown that about ninety per cent of the children that were admitted to the sanitarium had bacteria in great abundance in the contents of the intestinal canal. That was not astonishing because we found bacteria largely in healthy children, but there was this one thing which predominated. and that was the bacteria in the intestinal tract were the bacteria that we find constantly in the mouths of the children who are sick, which produce putrefactive processes in albuminous materials, and I think from a study of those cases, some twenty-six in number, it was the supposition that these children were taking food and attempting to retain it for a longer time than they should, which is a common thing I believe among children to retain food in the mouth the same as we do in attempting mastication. At any rate the bacteria will go through and the proteid material will decompose, and some of the children die from nothing more nor less than ptomain poisoning. Further study of these cases showed that the children so affected and who died were at the age of dentition when the teeth, especially the anterior teeth, or the first teeth, were developing. That seems to be a common observation among people, that the first teeth that are developed are the ones that are more difficult, and at the same time this peculiar infectious condition follows. I do not think that my brother ever wrote a death certificate on dentition as a disease. He always considered death as being due to malnutrition. My brother paid a good deal of attention to the feeding of babies; he made this subject an extensive study, and the more he studied the question, the more he was convinced that dentition was nothing more nor less than a physiological process, and that the diseases incident to it were only concomitant and came at a time when he was inclined to designate it as the second stress in the development of the child.

Naturally one who has followed the lines of study I have looks for things along his particular line, and I am more and more convinced from observation that practically all diseases, which are more or less obscure, not only in infancy, but in adult life, are due to just these conditions, and due very largely to the putrefaction of nitrogenous or albuminous materials, one of the dangerous things that comes in the life of every person quite frequently and eventually brings about a distressing condition that may be the forerunner of an invalid or a rheumatic condition. Many of these children at this time develop a peculiarity of sore throat. The child is not conscious of this sore throat, and unless the physician is very skilled and interested, he is liable to overlook that one condition. Just in connection with that there is a form of stomatitis that follows, that carries with it the possibilities of certain infection which may pass into the general circulatory system through the tonsils, or the lymphoid tissues of the body, and this is a condition which I think not only physicians should study and think about, but I believe as long as it comes in the line of our observation, and we are interested in it, we should, as a dental profession take more interest in this particular thing. Today we are advocating the taking care of the children's teeth in our public schools. We are examining the children for the purpose of preventing disease. If the physician would take a step in advance of that and try, if possible, to ward off some of these conditions and teach people the better care of the children, it would add very largely to the growth and development of the human race, and establish beyond any question of doubt the causes of the great mortality that go along with infancy and childhood. This is certainly a question which is vital to the human race. As long as we are not gaining very much in populating the earth, it seems to me that we should try to raise those that have the good fortune to come into existence to greater advantage and take better care of them than we do in the earlier periods of their lives.

This paper, to me, has been very interesting, and I cannot say too much in praise of work of this kind because it really means something. It may not mean anything to us as dentists generally, or but little to us, but it means a great deal to the future generation of infant raising, at least. It is important that we should preserve the health of the individual, and I, for one, wish to thank Dr. Kester for this line of research that he has taken up.

DR. HINKINS: May I ask Dr. Cook a question?

THE PRESIDENT: Proceed.

DR. HINKINS: Dr. Cook omitted a very important point relating to the reports of the children at the sanitarium at Jackson Park. What I learned from conversing with his brother was this, that most of the children I saw there were from the tenement districts and from the poorer classes. These children lived on the poorest grade of milk and the poorest grade of food, and consequently were more susceptible than the other class of children.

DR. COOK:

It is true, that children who are not surrounded by the best hygienic conditions and who do not obtain the best foods are the ones that naturally suffer, and they are largely the ones from which we compile our statistics in our research work. At the same time, I have known children in the best of families, who receive the best of care, and the finest quality of food, develop these troubles. I can recall the baby of a friend of mine, a man whom most of you know in a way. They were very solicitous about this little child, and they had all the means possible to care for that child, gave it the greatest care and the best quality of food, and yet it had some difficulty all through the period of dentition. It had these spasms which are so characteristic of the eruption of teeth. That child would suffer several days from some disturbance and most always had two or three spasms during the eruption of a tooth. It alarmed the parents considerably, for which they consulted physicians, and it was only with the greatest difficulty that the child was carried through that period of eruption of the teeth or in getting its first teeth. The child is still alive and has all of its permanent teeth, with the exception of the third molar. But during all this period there was trouble and it seemed to be just that one thing. Various means were tried to obtain the best quality of food, but seemingly just at the time of the eruption of the teeth the same thing would go on. The child would be frightened at something. It was a nervous child. It was what you might call a neurasthenic child from the start, because it came from neurasthenic parents. It was one case I had the opportunity of observing very closely, and yet it was not one of a class of children in whom you would naturally look for this trouble.

DR. J. H. WOOLLEY:

I wish to thank Dr. Kester for preparing this paper for our benefit, and I gather from the reading of the paper that the doctor believes that dentition is coincident with other diseases of the system. What I would like to see is a race that is so thoroughly and fully developed physically that this process of dentition will be a purely normal and physiological one. It seems to me that statisticians are not able to judge correctly as to whether these diseases are caused by dentition or not, because it takes considerable research work to prove their philosophy, and the future settlement of this question can only be determined by research work along different lines. We see what wonderful developments are going on in an institution like the Rockefeller Institute, we notice the revelations that are taking place there in reference to the different diseases and their causes, all brought about by research work. So I hope that the time will come when a study will be made how to bring about the best race through marriage, not a promiscuous meeting of people and marrying, but conditions, improved conditions, brought about along the lines that are being made use of in the development of cattle, like the work Dr. Brophy is doing, so that when these diseases occur, it will be a purely natural physiological process, and that there will be no disease occur from these different physical developments of a purely natural process.

DR. L. L. DAVIS:

Whenever Dr. Kester reads a paper he always selects some unique subject that is of more than passing interest to those who sit around this table, and when he told me over the telephone the other day the title of his paper, I could not understand dentition as a preventable disease, and I could not get at the idea of how he was going to discuss this subject. Of course, when one sees what is published by the governments of the various states regarding vital statistics, which are authoritative, and so many deaths are ascribed to dentition, naturally we have got to put dentition down as a disease, and I can readily see now that mistakes are made in the classification of diseases. For instance, we see in the papers now and then that some prominent man has just died very suddenly, and the physician reports it as being due to heart failure. One of the things that we all die from sooner or later is heart failure. But you see that frequently given as the cause of death. It is simply carelessness on the part of the attending physician, and to say that dentition is a disease is simply a slipshod method of classifying diseases, although even the best of us are apt to get into this rut once in a while by following in the lines of general usage. It is just such papers as this that put the profession on a higher plane to do the right kind of work. There is where I think our essayist of the evening is to be congratulated. He is forcing the profession to a higher stand, not only the dental profession, but the medical profession. The medical profession have got to be a little more clear and concise in their definitions and classifications of diseases.

Dr. J. G. Reid:

There is one phase of this subject that is very interesting, and that is the statistical features. The essayist has given us figures from ten states, and according to what he has said we have over 120,000 deaths under two years of age, and of that number we find 1,200 deaths attributed to dentition.

I remember when a student in college that we had two lectures given to us on the diseases of children, and they were given by an anatomist, a very fine, well educated man, who was well along in years, and who had not only a lucrative but a large practice in Cincinnati among children, and for that reason he was a man who was capable of passing an opinion upon diseases of children, and he considered this subject of such importance to the dental profession that he devoted two hours of his time to giving a resume of conditions that arise during the periods of dentition. I may say, however, that his opinion was entirely contrary to the fact that dentition is a disease, or that children die from it. He impressed upon his class very forcibly at that time and positively made the assertion that he had never in his practice seen a child die from dentition, and then he went on to relate that the reason why children at that period of life have so much trouble was largely a traditional one, pure and simple, and that is true today. The impression prevails among people today that dentition is a terrible thing. Mothers have come to my office and said what a terrible time their children had when they were teething, especially when they were having their stomach teeth. This false impression has prevailed with them from infancy up, and medical men are still willing to drop on to that as a loophole to get out of their difficulties. While the child is teething the mother expects it to have trouble, and this belief has been inculcated into parents from infancy.

I heard Professor Barrett give a lecture at one time on this subject. He went on to describe the changes of the system at that time, and said that the child should live on nothing but mother's milk, if possible. It should always be possible, but it is rarely done. He stated that when the mother was able to furnish the necessary nourishment for the upbuilding of her child, the child never had any trouble with its teeth, and that if the child was unfortunate enough to become dangerously ill under such circumstances, it was attributed to something else, and as Dr. Brophy has stated, it may be some intestinal disturbance brought on by carelessness in feeding. The child at that period in life is in no condition to take any other food than the natural food given it by its mother, and that it was undergoing a new process of development, a change of life, with other things that were necessary, and that when a child died, then it was purely from another cause than dentition. It was one of the best lectures I ever heard along that line, and I believe what Dr. Barrett said is true. That lecture always impressed me with that belief. When a mother mentions in my office that her child had trouble with dentition, I do not hesitate to say to her that the trouble was due to something else; that she may have fed the child some potatoes or chicken, or something of that sort, which ought not to have been given the child. That is common sense to me, and that is the way I talk to my patients when they bring this subject of teething up.

Dr. Barrett was suddenly called to see a little child about twelve months old. The nurse had had the child out in the park taking care of it. It was a nice day. The mother had gone off on an errand down town and left the nurse to look after the child and to take it out into the park. She had been out there two or three hours. While the mother was gone the child suffered intensely, and the mother was almost hysterical over the appearance of the child when she saw it. She called for the doctor to come. He went to the house and found the child in spasms. He said to the mother, "How long has this child been sick?" She replied, "I noticed this morning that the child was restless, and I thought he was beginning to cut one of his stomach teeth." That is the way she expressed it. He looked at the mother, and said, "What have you been feeding the child?" She replied, "Nothing." The doctor said, "I wish you would bring the nurse in here." He asked the nurse what she had been giving the child, and she replied, "I have not given it anything." The doctor then said, "Are you sure you have not fed the child anything since you have had it out?" The nurse replied that she had given the child nothing. The doctor went to his ipecac bottle and gave the child a pretty good dose of ipecac, and in about fifteen minutes the child vomited more raisins than he could hold in one hand in the presence of the nurse and the mother. He said to them, "I knew you were lying every minute you told me you had not fed the child. I knew it, and I wanted to prove it to you." The nurse had given the raisins to the child.

Dr. Kester (closing):

It seems like setting up a man of straw in this society to make all this ado about dentition as a disease, but I think if you followed my paper closely you will see that dentition is treated as a disease by men who are instructors in colleges, and by men who have to judge of the ills of humanity. In looking up this matter I read many articles and I consulted many books to satisfy my own curiosity as to how many of these men were teaching that dentition was a disease, and it was surprising to see the list of disturbances that were given as caused by dentition. I noticed in the older works and the older countries they insisted upon the fact that there were disturbances during dentition, and that these disturbances were due to it, and it is as Dr. Reid has said, if you talk to any young mother and ask how her baby is, she will say that it is very restless because it is teething; it is sick because it is still teething. It means that the child is neglected at this particular time, at a critical time perhaps, and the results are that the child is temporarily or permanently injured from lack of attention at that particular time, simply because the mother has thought the child was suffering from teething. You have all struck the keynote as to the disturbances during dentition, and they are probably of gastro-intestinal origin. It is a physiological fact that the glands which secrete the juices which digest meat are not developed until the child is a year and a half old, or until it is eighteen months old. Now, what is the effect upon the intestinal tract of a child if you give it meat before these glands are developed sufficiently to digest it? That is a mere incident in the whole matter, and my interest lies in the fact that the public generally still believe in this old superstition that teething is a disease, and it is the cause of much sickness and death among children. In my own neighborhood a child was ill, and a doctor was called in. The doctor looked at it for a little while, it had some fever, it was almost on the verge of having a spasm, it was rolling and tossing its head back and forth, and he said to the mother, "Your child will be all right in a few days; it is teething." The people were not satisfied with that opinion, and they called in another physician, and he said he was called too late as the child had cerebro-spinal meningitis, and it is dying. Now, it may not have been possible for the first physician to know what was the matter with the child in order to save it, and yet it must be a horrible shock to his professional dignity to know that the child died from cerebro-spinal meningitis when he had seen it a few days before and had failed to make a correct diagnosis.

Dr. Woolley:

We know that when girls reach the age of puberty or are starting in womanhood, their mothers pay very little attention as to how they take care of themselves. During this critical period there are many girls who have great difficulty and a great deal of sickness. Can we not say that this is a dangerous process, that girls on reaching puberty may be quite ill and many of them may die when that physiological process is going on because proper care is not taken in their development? More care should be paid to the diet and the mode of life in order that the child may go through the process of dentition without any special danger.

Dr. Kester:

There is no particular disturbance dependent upon the eruption of the teeth, but the teeth themselves are more or less dependent upon the condition of the child. You have all had instances come under your observation in practice where children have presented evidences of interrupted development of the teeth on account of measles or scarlet fever, skin diseases which are closely connected with the teeth. You can see by these disturbances how quickly the processes are interfered with.

I have been a good deal of a crank on this particular subject ever since I have been in the dental profession, because I believe it is one of vital importance, and that is my excuse for having presented this paper. The importance of the subject lies in the fact that the physician still allows his patients to become worse simply because he is willing to take the mother's diagnosis that the child is teething. It is for this purpose, it seems to me, the subject ought to be agitated, because as I said in my paper the development of the teeth depends very largely upon the proper development of the child itself.

DR. JOHN D. NICOL.

Died: August 4, 1911, at his home in Peoria, Illinois, Dr. J. D. Nicol, aged 51. Cause, hemorrhage of the brain.

The sudden and untimely death of Dr. Nicol removes from the profession one of its most sterling members. He always stood for the highest and best there was in dentistry and those who will miss him most outside of his family are the members of the Peoria County Dental Society with whom he was something more than a dentist—he was a true and loyal friend. The Dental Review wishes to extend its sincere sympathy with those who are bereaved.

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EDITORIAL.

A PUBLIC ARRAIGNMENT OF AMERCAN DENTISTRY.

In the August number, 1911, of *Current Literature,* is an article on "An English Physician's Denunciation of American Dentistry," which demands more than passing attention. Usually an article so intemperate and so perverted in its conclusions would better pass without comment, but in this instance the force of a widely published and influential American magazine is lent to the exploitation of opinions held by a practitioner of medicine in England who is judging dentistry on the basis of his experience with the work of men who are neither typically "American" nor do they represent typical "dentistry." His charge, among other things, is "That dentistry as practiced in this country is a curse to the world, the fruitful source of one of the most terrible scourges affecting the physical frame of man—Sepsis. In other words, dentistry, as practiced by even the ablest men in the American profession, is spreading deadly maladies not only among the moderately well off, but among the very rich. Indeed the rich are the worst sufferers because they can afford the price of the most skilled work."

In view of the actual and known facts as to what dentistry has accomplished for the welfare and longevity of the human race, such a statement is too ridiculous to even ask for refutation, and yet when this statement is attributed to so eminent a man as the pathologist to the London Charing Cross Hospital, it is time that we as a profession should pause and inquire into the reasons for such an arraignment. Dr. William Hunter is the man whose vials of wrath are thus emptied out on the heads of dentists and were it not for the extreme intemperance of some of his remarks, it would be taken for granted that he firmly believed that he had just cause for his charge. His contention is that under the crowns, bridges and fillings inserted by dentists, there lurk the most baneful influences in the way of sepsis, and says that instead of calling it "conservative dentistry," it should be called "septic dentistry."

We wish to discuss this matter in the most equitable and fair minded manner, and we are willing to admit that many cases of sepsis have been caused by ill fitting crowns and bridges and by filling over pulpless teeth not properly treated, and that Dr. Hunter has probably seen many of these purporting to have come from the hands of so-called "American dentists." It is notorious that all over Europe the sign "American Dentist" is flaunted before the public, the reason for which it is not our purpose at this time to discuss, except to make the claim that in most of such offices dentistry is not practiced by Americans nor is it the dentistry practiced at home.

But to intimate that all dentistry is deleterious in its effects on the human system is a species of the most unjust and pernicious teaching. Wipe dental service out of the world today and we would immeasurably add to the sum of human suffering and rapidly shorten human life. That the factor of sepsis is as keenly and intelligently considered by the better class of dentists the world over as it is by the practitioner of medicine is amply verified by our periodical and text book literature, as well as by the teaching in our dental colleges.

And in this connection the article in *Current Literature* winds up its tirade with the following unjust and abusive paragraph—not a quotation from Dr. Hunter, but with the intimation that these are his views as expressed in the London *Lancet:*

"There seems only too good reason to infer moreover, that the professional education of dentists is often of the most superficial sort. The profession is recruited in some American communities almost at haphazard. The training is frequently of the manual kind. Provided the student displays a digital dexterity in manipulation, he is not questioned too closely sometimes regarding his scientific knowledge. He goes about his work in the densest ignorance of such things as therapeutics and infection. He is no scholar and in no sense a man of science."

The far cry from such a statement as this to the actual conditions existing in most of our American dental colleges of today, not only in their preliminary requirements, but in the thoroughness of their teaching methods, is only indicative of the general inaccuracy and injustice of the entire article, and if the object of any public utterance is to do the greatest good to the greatest number then the effort of Dr. Hunter, well meant though it may have been, as well as its exploitation in one of our prominent American periodicals, is a sad commentary on the judgment and justice of human kind. The amount of misstatement in the entire article as well as its false conclusions, would warrant its being ignored by the dental profession were it not for the fact that the public is entitled to have the truth placed before it.

And the truth is that while there are charlatans in dentistry, as there are in every other calling, medicine not excepted, yet the majority of dentists are doing vastly more good than harm, that they are keenly alive to the evils of sepsis and are doing all in their power to avoid it when it is absent, and to cure it when it is present, that by their services they are preventing untold suffering and adding much to the sum of human happiness, that in their educational methods they are as thorough and painstaking as are the teachers in any other profession, recognizing fully the importance of such fundamental studies as anatomy, chemistry, physiology, pathology, materia medica and therapeutics as well as oral prophylaxis and hygiene, in all of which the dental student receives a most thorough training and finally that when the effects of our present educational propaganda are fully realized, as they promise to be within a generation or two, it will add immeasurably to the longevity and efficiency of the race. In view of these facts the lesson for us to learn is to redouble our efforts toward a higher conception of our greatest possibilities as a profession, and to forget as quickly as possible the ill-timed and unwarranted strictures which have been cast upon us in this article.

PRACTICAL HINTS.

EDITED BY J. E. SCHAEFER, D. D. S.

(This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.)

A Handy Sprue Former:—If you possess a phonograph, save the discarded needles, (the round kind only) and utilize them as sprue formers in the casting process, especially when used in conjunction with the Elgin base, either single or multiple.—*J. G. Jerka, D. D. S., Chicago.*

Punch Holes in the Rubber Dam:—To relieve the distressing and timid feeling brought about usually by the application of the rubber dam when inserting a filling, particularly among the children and nervous women, punch a half dozen holes in the center of dam, thereby allowing them to breathe easier and quieting their nerves.—*J. G. Jerka, D. D. S., Chicago.*

Remedy for Burns:—Dentists, as a rule, have at hand one of the most efficient and soothing remedies for burns, viz; grain alcohol. Saturate cotton or lint, cover burn with same and keep moist until pain subsides, which will be in a very short time. Healing is by first intention in nearly every case, regardless of the depth or extent of the burn. Alcohol also neutralizes the effect of carbolic acid on mucous membrane.—*E. G. McAbery, D. D. S., Chicago.*

Taking Wax Impressions:—In making M. O. D. inlays in bicuspids and molars we often meet with difficulty in getting a perfect wax impression. This is due to the fact that the cavities are large and complicated and the wax cools before we have forced it into all parts of the cavity.

I have been able to overcome this difficulty by taking separate impressions of the mesial and distal portions of the cavity and then melting the two together over the occlusal with a hot instrument.

This absolutely insures a perfect impression of the gingival wall and the rest is easy.—*O. DeForest Davis, D. D. S., Minneapolis.*

On the Removal of Pulps:—On the subject of the removal of pulps either by arsenic or pressure anesthesia, I believe that the use of arsenic is practically the obsolete method of removing or devitalizing the pulp. It has been my experience that cases that I cannot remove by the use of cocain or pressure anesthesia, it is quite impossible to remove them with arsenic. I find that cases upon which the cocain will not act under pressure anesthesia properly applied, are not susceptible to treatment with arsenic. It has been my practice to use pressure anesthesia almost exclusively for a great number of years, and I become more enthusiastic about it every year.—*F. E. Roach, D. D. S., Chicago.*

Necrosis of the Pulp:—Necrosis of the pulp is frequently met with. A pulp may be dead for months without causing any disturbance. It may be discovered on examining the teeth of a patient without the latter having any knowledge of its existence. The tooth under observation is often more or less discolored, hot or cold produces little or no reaction, the translucency has usually become dulled, but the safest diagnostic aid is the electric current. A necrotic pulp does not respond to even the full current of the ordinary battery. The pathological types of pulp necrosis, viz.: coagulation, colliquation, caseation and mummification play no part in the diagnosis proper.—*Hermann Prinz, M. D., D. D. S., St. Louis.*

Controlling the Shades of a Porcelain Inlay:—After the cavity has been prepared select the shade of cement which you will probably use in setting the inlay, mix a little of the powder with water and coat the walls of the cavity. Now select the shades for the porcelain; if the color of the cement shows through the tooth you can overcome at this stage to a very great extent any change that the cement would have on the inlay when finished. Also when the inlay is finished and ready to set, again coat the walls in similar manner and set the inlay to place.

If the shade of the cement gives an imperfect color to the inlay it can be modified before the permanent setting of the inlay. —*W. D. Vehe, D. D. S., Minneapolis.*

Occlusion Plus Articulation. No. 4:—The first and second positions are obtained by the use of the face-bow. The adjustment of the sliding rods over the outer ends of the condyles with the setting of the central clamp determines the anterio-posterior position of the models. The direction of the bite stem or fork of the face-bow which is placed parallel to an imaginary line extending from the external opening of the ear to the ala of the nose, determines the plane in which the models shall be mounted to the articulator. Hypothetically we transfer the jaws to the articulator, it is, therefor, of the greatest importance that we maintain them in the same plane which they occupied in the mouth.

The third position as stated is the one obtained by taking the bite.—*J. E. S.*

Surgical Treatment of Dentoalveolar Abscess:—The surgical treatment of chronic dentoalveolar abscess is indicated in those cases where the medicinal treatment has failed to effect a cure, or where the root has been thoroughly filled and the abscess developed subsequently. Especially is surgery indicated in this latter class of cases, if the affected tooth is firm in the jaw and has a good natural crown or carries a well-adjusted artificial crown. It is always best to have a skiagraph taken to aid in determining the area involved and whether or not the root has been properly filled. In those cases of failure to cure by treatment through the canal, and where surgery is to be undertaken, it is best, in my opinion, to fill the canals before operating, especially if the root-end is to be excised; for, while it can be done, it is rather difficult to close the general large apical opening of the canal after excision. This operation should be done under the most aseptic conditions; the hands of the operator and assistant, the site of operation, as well as all instruments used, should be sterilized; and, in the absence of a skiagraph, a thorough exploration should be made that the amount of process and root involved may be noted.—*J. P. Buckley, Ph. G., D. D. S., Chicago.*

Question of Extraction:—The question of extraction in orthodontia, in all its various phases, is so extensive that only its most prominent features can be thoroughly considered in a single society paper, nor can much be said in the short time permitted in its discussion.

There are, however, certain underlying principles which may be briefly stated:

First: Teeth should never be extracted merely as a convenience to their regulation, because however crowded or jumbled in position, they can always be placed in alignment in the arch, where their presence may be absolutely necessary for the correction of occlusion and dento-facial outlines.

Second: The importance of a normal occlusion of the teeth which I believe is fully understood and appreciated by the entire thinking dental profession, leads to the rule that teeth should never be extracted in the practice of orthodontia except in cases of decided protrusion which cause facial deformities that cannot be otherwise corrected.

This refers to those cases in which the entire denture—the buccal teeth as well as the anterior teeth—are placed through inherent causes, too far forward, in relation to the jaws and normal facial outlines; producing facial deformities which cannot be corrected by lateral expansion of the arch nor by a possible distal movement of buccal teeth.—*C. S. Case, M. D., D.D.S., Chicago.*

MEMORANDA.

G. V. BLACK DENTAL CLUB.

The G. V. Black Dental Club will hold its annual mid-winter clinic in St. Paul on February 15-16, 1912. A program of unusual interest has been prepared and a cordial invitation is extended to the profession to attend. R. B. Wilson, Secretary Am. Nat. Bank Bldg., St. Paul, Minn.

DENTAL INSPECTION—CHICAGO PUBLIC SCHOOL CHILDREN.

The supervising dentist attached to the school medical inspection service of this Department has recently completed a tabulation of some 8,608 dental inspections of school children, and from this tabulation the following facts are noted:

Condition of—	Good	Fair	Bad
Mouth	3,163	3,895	988
Gums	3,545	3,613	1,203

Only 2,894 of the children examined had ever used a tooth-brush.

There was mal-occlusion in 1,359 cases and palatal defects in 114.

Of the number designated as "good" in the foregoing statement, 744 may be classed as perfect. On 4,388 of the charts, cavities appear in the first permanent molars, 867 being marked as possible to save by devitalization and root filling, 1,137 being noted as beyond all possibility of saving.

When it is considered that the first permanent molars are most necessary while the deciduous teeth are being exfoliated and their successors of the permanent set erupted, it can be seen how essential it is that all which can be saved should be attended to.

Of course, the percentage of teeth requiring dental attention varies with the locality and class of people. In the poorer districts the percentage runs as high 97, while in the better residence districts it runs as low as 40 per cent.

When school reopens in September at least two more dental dispensaries will be available for the correction of teeth defects in school children.

The Department takes this opportunity to express its appreciation of the splendid co-operation which the dental profession of the city is lending in the important work of correcting the commonest physical defect found in school children. Bulletin of the Department of Health, City of Chicago, July 29, 1911.

RECENT PATENTS RELATING TO DENTISTS.

982,406. Orthodontia apparatus, R. Wiles, Chicago, Ill.

982,251. Internal combustion engine, Robert W. Coffee, Richmond, Va.

983,174. Dental napkin, Albert L. Simpson, San Diego, Cal.

983,538. Dental broach holder, Edward L. Chott, Chicago, Ill.

983,685. Artificial tooth, Frank J. Claypool, Ottawa, Kans.

983,516. Detachable tooth facing, George W. Patten, Minneapolis, Minn.

983,844. Dental matrix clip, George H. Shannon, Cambridge, N. Y.

983,780. Dental chair, Leo Smith, Hammond, Ind.

983,579. Making dental inlay fillings and the like, William H. Taggart, Chicago, Ill.

13,203. (Reissue) Dental work, Harrison D. Best, Pittsburgh, Pa.

984,507. Dental motor, William E. Butler, David City, Neb.

984,419. Handpiece for dental engines, Frederick W. Dean, Des Moines, Iowa.

984,040. Odontometer, George Siverling, Chicago, Ill.

984,796. Dental impression cup, Ira A. Burnett, Chicago, Ill.

984,752. Tooth powder can top, Conrad Deichmiller, San Francisco, Cal.

984,782. Crown pin, Frederick J. Starr, Asbury Park, N. J.

985,159. Gas blowpipe, Nelson Goodyear, New York, N. Y.

985,489. Dental casting machine, Frederic W. Wright, New Glasgow, Nova Scotia, Canada.

986,051. Tooth brush, Levi L. Funk, Chicago, Ill.

985,896. Blowpipe apparatus, George W. Hopkins, Cleveland, Ohio.

986,076. Orthodontia apparatus, Christoph F. Montag, Blue Island, Ill.

986,425. Orthodontia apparatus, Theodore H. Montague, Blue Island, Ill.

987,063. Dental impression tray, Jacob W. Greene, Chillicothe, Mo.

986,653. Reinforced tooth crown, Samuel G. Supplee, East Orange, N. J.

DESIGN.

41,214. Match or tooth pick dispenser, Theodore Kurrell, and J. Haas, Los Angeles, Cal.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

THE

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PROFESSIONAL UNITY.*

BY C. N. JOHNSON, M. A., L. D. S., D. D. S., CHICAGO, ILL.

If you stop for a moment to consider the matter you must be forcibly struck with the fact that it is exceedingly rare for an individual to accomplish anything of importance by a single-handed effort. Man is essentially a community animal, otherwise we would not see cities of more than a million people congregated together. When a man becomes a hermit he is always looked upon as being "peculiar." We long for the association of our fellow man, the stimulus of personal contact. And yet as far back as history reflects we see the association of men in communities marked by strife of one sort or another. We see the warfare of tribes of savages for supremacy, and in later days we see a warfare of wits for political or commercial supremacy. And we see in all this a terrible waste of energy which might do endless good if directed into legitimate channels. In the warfare of the savages many a noble red man and black man has laid down his life, and if human life is valuable there has been in all ages an appalling sacrifice on the altar of human ambition. When men evolved from the mere barter and trade of articles known as the fundamental necessities of life, and launched out into wider commercial areas, the competitive element at once entered into being and evolved the factor of strife. And most men from the earliest ages down to the present time have had a wrong conception of what constitutes success in life or what are really the best means of attaining it.

Behind nearly all competitive strife there is the mainspring of personal ambition, which may express itself in any one of a myriad different ways but which in the last analysis is a thirst for power. And the theory on which this power is sought to be attained is the erroneous one that in order to build up one's self it is necessary to tear down some one else. Here is the one colossal mistake which the world has made, and it is a mistake which has cost humanity one thousand years of progress. Only now in small centers and in certain institutions is a small ray of light creeping in to show the true secret of human advancement, and for the first time in the history of the world is the fact beginning to be recognized that the surest and quickest way of building up one's self is to help to build up others. No man ever reached down to help to his feet a fallen human being that he did not thereby raise himself in mental and moral stature, and relatively in the same degree no man ever sought to advance the interests of a competitor in any line of business that he did not accomplish his own advancement.

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*Read before the St. Louis Dental Society, April 4, 1911.

Our large commercial houses are recognizing the advantages of unifying their methods, and we accordingly see associations of commerce springing up in our big business centers with the object of studying the most scientific means of conducting trade. They are now devoting an energy to this study which formerly was dissipated in foolish contention and underhanded methods of competition, and they are today doing business on a surer foundation and with less of the element of personal strife. Personal strife in any relation of life, business, professional, or social is always a deplorable waste of energy. It has never accomplished anything of value for the betterment of the race, and it never will.

In this connection let me quote from an article in a recent magazine:

"There are many superior thinkers who believe that the society of the future will be established on the group idea. That is, fifty, a hundred or five hundred people will work together for a common good—this in the interests of economy, education and mutual happiness.

"The value of a man's services to society is in proportion to his ability to work with other men.

"He must be willing to give and take. He should be slow to anger, not see and hear too much, and keep a civil tongue in his head. He should have faith in Nemesis, and have no time to act as an advance section of the Day of Judgment.

"Superiority is shown in this one thing: the ability to meet and mix with those of different temperaments and tastes, high or low, on a basis of equality.

"A man should be at home in any society. To be frank, open and full of good cheer; to refrain from interfering in affairs that are none of his; and to know that personal misunderstandings usually right themselves if let alone—these mark the superior person."

Among the professions there is even a stronger argument for unity of effort than in commercial life. We are, of course, more familiar with the history of our own profession than with that of any other and we need to go no further than this in making our contention. The condition of dentistry before the advent of dental societies, dental journals and dental colleges needs but the slightest reference to prove how deplorably inefficient it was in all the factors which make for true professional status. It was in reality no profession at all.

The advancement made since the first dental society was formed has been phenomenal, so much so that it is acknowledged on all hands that in no other profession has there been similar progress in the same time. And yet there is a reverse side to the picture. We must not complacently flatter ourselves that we have taken advantage of all of our opportunities to accomplish the utmost which we might have done under the circumstances. Dentistry has advanced in spite of serious handicaps, the chief of which, as I view it, is the same thirst for personal power which has marred the advancement of the race. In the very early organizations among dentists we see little of this. I can imagine for instance that the organizers of the St. Louis Dental Society more than fifty years ago did not make much of a personal scramble for office. It was in those days the best man for the position. But when the societies began to grow in numbers and influence it became apparent that to hold the presidency of such an organization gives a man a certain prestige in his community and thus entered the canker of personal ambition for office which has wrought havoc in so many organizations where it has been allowed to dominate.

Not that it is possible to keep politics entirely out of any organization which has a large number of members. This is feasible only in small societies of limited membership where rotation of office is the rule. The Odontological Society of Chicago is a good illustration of this. The society is limited to fifteen members and each man takes office in his regular turn. Of course annually there is an election of officers but it is a mere matter of form, and is all over in a few minutes. This ideal method cannot obtain in a large organization, and it is doubtful if politics can ever be eliminated from our associations. But we can at least eliminate one thing and that is the prolonged and bitter controversies which so frequently follow in the wake of these political contests. More energy has been wasted in this way among all professions than would be required if expended along legitimate lines to advance them at double the pace they have gone. And yet men do not seem to be able to see this. It needs a wider vision than most of us have to look beyond the narrow confines of personal ambition and view the broader fields of principle and of professional achievement. If we could only be brought to see the shallowness of political preferment, with all of its fleeting and flimsy glory, with its transient power, and in the end with its inevitable disappointments we surely would not struggle so hard to attain it.

Contrast this with the satisfaction, the lasting satisfaction, of knowing that you have contributed something of real service to the betterment of the race by a new idea for the alleviation of human suffering. After all there is only one thing worth striving for in this world. All else is as sounding brass and tinkling cymbal. We may make great wealth and quite as likely as not it will prove a curse rather than a blessing, we may attain to political power and in the end the fickleness of public sentiment will drag the support from under us and down we go in humiliation and defeat, we may fly high in the social realm only to have our wings singed by the scorching fires of envy and deceit, we may win renown in the world by some great achievement and listen to the music of the plaudits of the crowd, and yet there is in all this nothing of lasting satisfaction. The praise of the multitude palls after a while because we learn to know how evanescent it is. The only thing really worth while is the good we do to our fellow man, the good we do quietly and without ostentation. The sole commendation we need is the consciousness of our own heart that we have done a good thing. If we have this with us at all times we need seek no further stimulus for growth.

And if this sentiment should prevail in the profession as well as in the individual there is no limit to the amount of good which could be accomplished. We would go forward in leaps and bounds toward the fulfillment of the highest ideals to which any profession has ever yet attained.

But before this can come about it is necessary for you and for me to change our points of view and look more broadly upon our mission as professional men than we have ever done in the past. We must absolutely in fact as well as in theory see beyond the bounds of personal ambition and seek only the greatest good to the greatest number. The first important lesson for us to learn in this connection is to be able to see the other man's point of view and have the utmost charity for his position. And this is the most difficult ideal for poor frail humanity to realize, and yet it must be done before we can make true progress.

The dental profession has at this time an opportunity of setting an example in professional unity which has never before existed in its history and which has seldom been presented to any calling. The wave of interest which is passing over the public regarding oral hygiene, and the awakening realization of the importance of the teeth as factors in health and longevity make it possible for us to achieve something fundamental for the benefit of the race if we but grasp the situation and all work in unison for the common good. I believe it to be difficult for any one at this time, even for a dentist, to realize the full possibilities of this movement if the profession will but band together and drop any small contentions or animosities which may have arisen in the past and work with the sole object of developing a generation with better teeth, better mastication, better digestion, better assimilation and better health. The far reaching effects of this campaign will never be known till every city takes up the work in the spirit in which it has been carried on in the city of Cleveland. Here a test case has been made in a certain school to prove by actual demonstration the effects of proper dental service on the health, the mentality and the morals of the children. It was conducted in a poor district where the difficulties of such a test were greatest but where the need was also greatest, and it was demonstrated that a most profound change was made in these children. Not the least of this change was in the mentality and morals. Children who previously had been backward in their school work and unreliable in every way began to show a surprising improvement. A noticeable change was shown in the lessened demand on the part of the children for such stimulants as coffee, etc. One boy of fourteen previously to the test was in the habit of drinking six cups of coffee per day, but this was cut down till the abnormal craving for coffee was gone. It is impossible for me to go into the details of this test at the present time, but it may be profitable for us to consider briefly the reasons why we may logically look for these changes as the result of proper dental service. In other words what relations do bad teeth sustain to the mentality and morals of children?

You all know that a decayed tooth prevents perfect mastication on one side of the mouth even before it goes sufficiently far to cause pain. If we have decayed teeth on both sides of the mouth thorough mastication is impossible. When mastication becomes painful the habit of bolting the food without chewing is quickly established, and this leads to all the ills of indigestion and consequent lack of nourishment. Aside from this failure of function we have the actual danger of two distinct factors which must be reckoned with in the consideration of this question. Physicians are telling us that one of the chief causes of cancer of the stomach is the constant irritation of unmasticated lumps of food against the stomach walls. The stomach is forced to receive masses of material which it was never designed to care for and the delicate membrane is irritated into abnormal growths. Another grave danger in a neglected mouth is the constant factor of infection through the medium of micro-organic cultivation in the cavities of decayed teeth.

Dr. W. A. Evans, Health Commissioner of Chicago, has stated that well authenticated cases of contagious infection have been traced to the neglected cavities of teeth in children. Not only this but possibly the most prolific source of evil is the constant infection, not of a contagious nature which calls immediate attention to itself, but the insidious poisoning which goes on day after day where the contents of decayed cavities are being continuously carried into the stomach and lungs, thus depleting the vital energies of the system and leaving it open to the attack of disease.

Coupling these two things—the lowered vitality through lack of proper nourishment from inadequate mastication, and the depressing effects of the poisons introduced into the system—and we have a real and logical explanation of the mental and moral effect on the children thus afflicted. A child whose health is being constantly undermined in this way naturally craves stimulants, and this develops a taste for tea or coffee in large quantities if not for something worse.

It is well recognized that abnormality of body tends to degeneracy of mind and morals, and here is one factor of degeneracy which has been existing under our very eyes and which we as a profession have not taken cognizance of in any organized way till now. When it is known that at least 90 per cent of school children are today suffering from some form of dental disability it is surely time we were doing something to ameliorate the condition. In an examination of some of the school children of Chicago it has been found that so far 97 per cent are in need of dental service.

The enormity of the problem of correcting this evil is so great that it will require the combined efforts of the entire profession to do it justice, and the chief mission of this paper is to bring you this message and emphasize this need. If we are to assume the true status of a profession we must no longer close our eyes to the civic obligation now upon us and we must show the world that we are sufficiently humanitarian in our aims and impulses not to longer shirk our responsibilities so far as our duty to the public is concerned.

And there never was a time when the demand for unity of action was so great as it is in this movement. At its very inception we may well pause and pledge ourselves to unselfish service and to a broad-minded philanthropy which shall ignore the element of personal aggrandizement. There should be no attempt at individual preferment in this work. As much as possible individual names should be kept out of it, and the work should progress as the profession's and not as the individual's.

In any great movement it seems inevitable that opposition should develop through misunderstandings and false conceptions as to the possible honors connected with such work. In this instance we wish in every way to avoid this. The dental profession has here an opportunity to prove to the world its broad mindedness by working in harmony for the ultimate good, and in this it may, if it will, show a better record than the medical profession which has allowed many of its civic reforms to be marred by internal strife and unseemly scrambling for personal position and power. Today the medical profession is rent well nigh asunder by factional feuds which have their basis for the most part in personal ambition, and which threaten to minimize to a serious degree the real beneficence of a noble and otherwise honored calling. As has already been pointed out, these feuds are sinfully wasteful of energy which might well be employed in the up-building of the profession and the betterment of the race.

Our profession is not so old as that of medicine and not so well established. It will therefore not so well withstand the stress of internal strife, and it behooves us to most carefully guard our interests by a broad minded liberality which can look beyond the bounds of personal interests and see only the welfare of the whole.

In doing this we may be obliged at times to sacrifice our individual preferences and points of view, but the strongest man is he who can yield when yielding is conducive to the common good. Have we enough men of this type in our profession today to carry it safely through the various evolutionary movements which are so active at the present time? I leave the answer of this question in your hands, but so far as my own opinion is concerned I have never yet lost faith in my profession, and my faith was never so great as it is today.

In closing permit me to quote a little rhyme which recently fell into my hands:

"Let the howlers howl
And the growlers growl
And the scowlers scowl
And the gee-gaws go it;
Behind the night, there
Is plenty of light, and
Things are all right and
I KNOW IT."

PRESIDENT'S ADDRESS.*

BY DR. J. L. MALONE, SUPERIOR, WIS.

In entering upon my duties as presiding officer of this meeting and at the close of my term, I desire to express my thanks and appreciation for the compliment you have seen fit to bestow in selecting me president of this splendid organization of men working shoulder to shoulder for the upbuilding and advancement of our honored profession.

In bidding you a hearty welcome to this, the forty-first annual meeting of our society, permit me to express the hope that the work done and prepared for here may redound to the credit of us all individually and collectively; that there may be here a fusing of ideas looking to higher standards in our work and a closer relationship and friendship among our members. Let there go out from this meeting good,—not only for each of us, but for the thousands of patients with whom we come in contact. Unless this society shall inculcate in each of us a desire to do better next year than we did the last year—unless we shall desire and urge more of the ethics in our relations with our fellows, then our meeting will have been in vain. Let there go out a call for more interest, a larger work and for higher ideals.

In the years gone by much has been done. In the years to come, much is to be done. This is your work, my work. Let us see to it that it be well done.

It is not my purpose to enter into any discussion of the professional side of our work but content myself with some facts and suggestions which occur to me.

The total membership of our society as reported by the secretary, June 26, 1911, is 383. The total number of regular practitioners in the state is 1,578. A larger percentage of the practitioners should be members of this organization. The holding of the annual meeting in different portions of the state should be encouraged as it naturally has a tendency to awaken interest in the work we are doing by encouraging the old members and attracting new ones and it is in membership and that alone that we can show strength whenever needed.

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*Read before the Wisconsin State Dental Society July, 1911.

Further, it is my judgment that we would have a larger attendance and more interest shown at these annual meetings if we had them at some other season of the year. As it is now arranged, we conflict in a way with the national meeting and the consequence is that many of our members who attend that meeting cannot or do not attend this one. I recommend this to your careful consideration.

In the matter of professional achievement it is my thought that we should continue to do real scientific research work and that the Committee on Research Work ought to prepare a plan of action and report to the next meeting of this society—and in that view I would recommend that an organized effort be made by this society to induce county, local and district societies to become component societies of our state society, which should be considered, of course, and in fact is, the mother society. Also, that our society do whatever may be necessary to encourage more science and research work and that the Committee on Science and Research be requested to make a report to the executive council at least sixty days before the next annual meeting and that the council be directed to have the report printed and distributed long enough before the next annual meeting so that it may be studied preparatory to discussion.

Asking your indulgence for any shortcomings that may manifest themselves in my ability as a presiding officer, I am ready to proceed to the business of the convention.

SOME PSYCHOLOGICAL PHENOMENA ATTENDING ORTHODONTIA.*

BY DR. M. R. HARNED, ROCKFORD, ILL.

Dr. Frederick B. Noyes presented before this society last year, a paper entitled "The Index of Personality," in which he made this statement, "A child has no greater right than that he should have a fair chance to have his personality make its imprint upon his face—to have his face become a true expression of himself—but what are in the truest sense accidents, are continually marking faces with characteristics which are in no way the imprint of personality, but which react upon the individual in the moulding of character."

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*Read before the Illinois State Dental Society May, 1911.

How true this is, all who observe the multitudes of faces everywhere must know. A great percentage have been distorted by some accident of occlusion of the teeth, which has developed features by which we judge the individual, often unjustly.

A normal mind in a normal body, functioning properly, should be quite unconscious of the body. All is in equilibrium, the world is outside; but as soon as the equilibrium is disturbed the individual becomes conscious of himself. This may arise through distress in the part, or what is more frequent with the developing child, through the observations of other people. The child may be young enough so that he receives no impression except, that he is an object of curiosity,—and he becomes sensitive about it, or he may be old enough so that he perceives the looks of disgust, repulsion, pity, antagonism, or fear, and to the sensitive, growing child, no word need be spoken, the impression is quickly and accurately recorded, and his self-consciousness is increased, so he comes soon to reflect in his personality, and develop in character, what he sees in these faces, for what he sees is what is expected of him. The child that looks ugly will come to resent the constant accusation of it, which he sees in the faces about him, and he will act ugly. The child who has protruding teeth and a receding chin, "looks nasty," he looks as if he had sucked his thumb through knowing no better, and will probably never know better than to continue some weak or malicious habit. These are the forces which form habits of mind, and habits of mind control largely habits of body, and so they come to make the personality of which Dr. Noyes speaks, and the pathetic thing is that they are likely to become the governing factors in shaping the character, and all beyond the comprehension of the child, and largely forced upon him by reflection of what other people think.

The recognition of the potency of thought in the building of personality and character has given rise to some wonderful and interesting mental theories, such as *Christian Science*—which assumes that it is possible by declaration and demonstration, to live in perfect harmony with life forces, develop perfectly, and maintain this perfection. (A beautiful theory, not yet proven.) *Mental Science*—which recognizes and practices the influence of mind over matter. *New Thought*—which declares "If you don't feel the way you ought—then act the way you ought to feel, and you will soon come to feel the way you act." All of these are fine and helpful to some, but the trouble is, the mischief is done before the child is old enough to understand or demonstrate these theories.

Orthodontia comes in at this point with a knowledge of the formative laws and forces of occlusion, and supplements nature's forces and corrects the accidents before they develop into abnormalities.

Thus all the forces of development are utilized and harmonized, and no bad habits of thought are created or reflected. Psychologically, the child has no occasion to think abnormally, nor has any one else occasion to think of his abnormality. He stands forth with the "fair chance" of which Dr. Noyes speaks, to develop architecturally the type which nature had intended.

It is estimated that twenty-five per cent of criminals and insane are the outgrowth of abnormal development of the teeth, and the consequent pain, fear and psychological phenomena accompanying the same.

"Is there one in all the world who does not desire to be divinely beautiful?

"To have the most perfect body—unerring skill, strength, limpid clearness of mind, as of the sunlight over the hills.

"To radiate love wherever he goes, to move in and out accepted?

"The secret lies close to you, so close."

Thus a modern poet reveals the hopes and the possibilities of every human soul. Every one should desire to be beautiful, acceptable and helpful, and if he has not these desires he may be termed a defective, a defective being one in whom the forces of nourishment, growth and development have not been kept in balance. With the knowledge of these forces which orthodontia gives, with the abundant facilities for assisting nature which we have at hand today, it seems to me that we are entering upon a new era in our profession, an era when the child shall no longer be the prey of fatality, where heredity counts for naught and environment comes into the hands of masters, where the great "Primal contradiction at the heart of life" of which Emerson speaks, is realized in the object becoming the subject, the created becoming the creator.

As an idealist, I see the wonderful possibilities which lie before us, a work which is just begun. With Angle and Case still with us to guide, we should have many volunteers to this comparatively new, but greatest work, in way of opportunities for good and helpful service, which our profession presents. Here is creative work.

We can enter nature's laboratory and take a hand in the forming of better men and women, we can give the boys and girls a chance. Without a word of disparagement for any other branch of our profession, I want to say that there is no other opportunity so great as this in the profession, for broadening and developing our characters, as is presented when we take the material still plastic, and help to mould men and women in the likeness of God, instead of allowing them to become beasts.

ORTHODONTIA IN THE SMALLER CITIES*

BY DR. J. K. CONROY, BELLEVILLE, ILL.

In our present agitation of oral prophylaxis, the thought occurs to me, are we going to neglect our knowledge of orthodontia, which is a very potent factor in the care and preservation of the teeth? This very important branch of dentistry seems to be left entirely to the field of the specialist, and a large number of our profession feel that they are unable to attempt such operations, and to a certain extent, I may say, considerable blame is to be placed on those who specialize, and upon the discouragement given by the teachers of orthodontia.

I remember in my college days, I was told not to attempt such work unless I intended to devote a lifetime to the study of it; that it was useless to try to conduct a general practice and practice orthondontia as a side line, and not long ago I received a circular from an orthodontia school, in which one of the requirements for admission stated "No student accepted who has been in general practice over eight years."

It must be understood that the same oral conditions exist in practically all communities, whether in the large or smaller cities, and the teeth of these unfortunates must be placed in proper condition if possible. It does not necessarily follow, that because a father is unable to pay from three to five hundred dollars to have the teeth of his child placed in proper occlusion, that this boy or girl should be compelled to go through life a hideous looking object, when a little skill properly used will give the child a pleasing countenance, and if this be accomplished, a better use of the teeth.

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*Read before the Illinois State Dental Society May, 1911.

If the members of our profession will make a study of the number of cases they see in adult life, cases which in earlier life could have easily been corrected, they would realize that they are failing in their duty as professional men, if they do not advise all parents to have any small irregularity corrected while the children are young.

I do not wish to have it appear that it is an easy matter to correct all cases of mal-occlusion, but if the dentist will make a careful study of normal occlusion, and work in that direction, a fascination for this most interesting study of the teeth will surely grow with every attempt, and I must say, that while I have not been successful in all cases, I have yet to see a case that is left in a worse condition than it originally was.

Then there is the effect upon the child of what one would call association. The child always conscious of a deformity which cannot be hidden is often lax in studies, shunned by its playmates, and the object of criticism from a thoughtless teacher, which often causes backwardness in many who are really intelligent, when if the conditions were reversed, the child could enjoy life and not be the object of criticism because of a deformity which in nearly all cases could and should be corrected.

The successful or even partially successful completion of cases of mal-occlusion are lasting monuments to the professional skill of a dentist in a small community, and are often the means of shaping his future as a skillful dentist; it broadens his knowledge of the anatomy of the jaws, makes him see more of the oral cavity than the mere tooth he has to fill, keeps alive that which he is prone to forget he ever heard of in his college days.

In all smaller cities, not close to a specialist, we find three classes of people, commonly known as rich, middle and poor, and it is a well-known fact that there are not sufficient of these classes who are willing to have this class of work performed to enable any dentist to specialize, yet there are many who are willing to pay and who have been told the child was either too young or too old, and the condition goes on neglected.

The teaching of orthodontia has been a part of the Dental Curriculum in nearly every Dental College for about ten years, and with what knowledge is obtained in this manner, it seems to me that every dentist who has received any instruction and kept up with our dental literature on this subject, should devote a portion of his time to regulating the teeth of those who are willing to pay anything like a reasonable fee.

It is not my intention to go beyond the confines of my subject, as the method of regulation is to be covered by another paper, but there are some things to which I must call attention. You will note in a very large majority of these cases the lack of proper care and knowledge of the prophylactic conditions of the mouth; the child is often brought to the dentist suffering from an aching tooth and you observe a contracted arch, frequently conditions of mouth breathing, adenoids, enlarged tonsils, and if the tonsils are not enlarged they are badly infected, and these cases coming under our observation almost daily, yet we hesitate to give proper advice because we are afraid of our own incompetence. Can we continue in this way, and feel that we are serving the public as masters of a profession? Do we realize what we are here for? We who have the knowledge in whole or in part should make use of that which we have, in trying to help the growing child to make better use of those organs of mastication which nature has failed to place in proper occlusion, and it is one of the greatest pleasures of life to watch the weekly improvement in the child when they are conscious of having something done which they realize is for their betterment in every possible way.

Therefore, I make a plea, study orthondontia. Have regular hours two or three times per week to devote to this part of your work, even though your remuneration be small, you will have the satisfaction of knowing that your fees for other work will more than compensate you for the good you are doing for some child who looks to you to better his or her condition in life.

It must be understood that I do not wish to encourage any one who is not interested to attempt such work, as there are many things to be considered, especially that which the operating dentist must do prior to commencing regulating; all cavities must be properly filled, contact points properly placed and fillings carefully polished, and the teeth thoroughly cleansed, so wire ligatures will lie smoothly and snugly at the cervical margins, and not remain long enough to become a source of irritation. The entire arch, including the molar clamp bands must be removed at times, and the teeth cleaned, and then replaced to avoid forming of plaques which will be the cause of decay and unnecessary damage to the tooth structure. These are things which any careful operator will not neglect, but they are very important when a case of regulation is attempted.

The public today is demanding more of the dentist since we, as dentists, are commanding a higher place in the ranks of the medical world; and this being the case, it is our duty to prove to this public that our field does not consist in the care of the teeth alone, but we must also prove ourselves competent to take care of the structures which nourish these teeth and assist nature in performing that which she cannot do alone.

In conclusion, I wish to add, that if I can be instrumental in causing any of those who hear me to attempt this beautiful and most fascinating work, I shall not feel as though my efforts were in vain, and I most emphatically declare, that while this work should be done by a specialist, it has proven to me by years of actual experience that by having regular hours for orthodontia, entirely separated from general practice, this class of work can be done by any intelligent operator.

REGULATING TEETH.*

BY GRAFTON MUNROE, A. B., A. M., D. D. S., SPRINGFIELD, ILL.

Were it not for the common acceptance by the laity, as well as by many of the profession, of the term: "Regulating Teeth," I should be disposed to change the title of the subject I was asked to treat—and even now would propose the change to "Correcting Malocclusion of the Teeth."

We, as professional men, dislike the term: "cleaning teeth," and much prefer the term prophylaxis, but freedom of speech or right to the selection of terms, is largely a matter in which we can use our powers as teachers and train our people to the right choice.

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*Read before the Illinois State Dental Society May, 1911.

I would not presume to take your time to enter upon a description of the classification of cases of malocclusion or give an elaboration of the treatment most desirable in different cases, but desire to make this a part of the symposium—outlining some of the more important phases or points demanding especial attention. Most parents bringing children, and these are the ones from among whom we have the largest number seeking orthodontia treatment, wish to know what has caused the trouble that they wish corrected. Then come the questions: How long a time will it take to make the change, and what will it likely cost—in annoyance or pain—as well as money.

Too much stress cannot be laid upon the importance of having the respiratory tract in normal condition, for the classification, and the treatment also of any case has regard to whether the patient is a mouth breather or abnormal breather, and herein lies a most plausible answer to the first question, for with abnormal breathing comes abnormal development of the bones of the face and this, together with the pressure of the muscles of the face, causes improperly shaped arches and crowded ones too.

The lack of interest manifested by a goodly number of practitioners in the care of the deciduous teeth—resulting in ill-timed extractions of these teeth, is also a fruitful cause of trouble. Right here, we might approach the question of the proper time for correcting malocclusion. Many practitioners seem inclined to pass the cases needing attention with the assertion that the child is too young—or, let the teeth alone and trust to nature to straighten them. The modern dentist realizes that the teachings of etiology, histology and pathology warrant the practice of very early corrections of malocclusion.

The abnormal conditions often found in the deciduous set of teeth and the well known fact of the elasticity of the bony structures at such an age render the advisability of correction of such conditions of malocclusion in advance of the advent of the permanent teeth a matter for serious consideration. Much has been accomplished in these early cases by the well directed use of a lingual arch, made of No. 19 gauge platino-iridium wire fastened to Magill bands on temporary molars or teeth anterior to them. Nothing, however, can supplant the use of the regular arch and clamp bands, because they can be obtained in different sizes and adjustment is possible on the very young.

Especial attention is called to the Ainsworth system of adjusting the Magill bands and No. 16 gauge spring gold wire labial arch to temporary teeth, as well as to permanent ones, in cases of malocclusion needing considerable expansion of the arch in the bicuspid region. Part of this system is well represented in the *Cosmos,* May, 1909.

Every opportunity of talking to mothers about children's teeth and their conditions should be used to impress upon them the necessity for early correction of malocclusion and the art phase of the work can be brought to their attention, for there is surely a very strong argument in favor of this work in the wonders that have been wrought in facial art development; hence, it is incumbent upon the progressive dentist to acquaint himself with the diagnosis of malocclusion that he may give advice as to the proper time for treatment of such cases, for it has been said that malpositions of the teeth in general are but objective symptoms of abnormal development of the alveolo-maxillary arches as a whole, consequently, the early treatment of malocclusion resolves itself into the artificial development of the dento-alveolar and maxillary arches.

As the roots of the deciduous teeth are known to enclose for the most part, the crowns of the permanent ones, correction of malocclusion at an early age may be but the guidance of the permanent teeth into a position corresponding to the development attained by the artificial expansion of the arch by means of the simpler appliances used for children's teeth.

Along this line too much cannot be said in regard to rendering the appliances as simple and efficient as can be devised. Cumbersomeness and conspicuousness should be avoided as much as possible, for the pride of even the younger patients, as well as that of the parents, is sometimes hurt by the requirements which cause the wearing of even the labial bow or arch.

The element of time necessary for the work can only be fixed approximately, for the needs of individual cases cannot always be foreseen. The wisdom of frequent visits, not less than once a week, for prophylaxis, can not be under estimated, for the pathological conditions that might arise in longer intervals between visits could be forestalled by intelligent treatment along prophylactic lines, and the comfort of the patient rendered more sure. The rest period sometimes allowed in cases because of some conditions like special nervousness or absence from the operator has proved beneficial, but of course, has added to the time consumed in the completion of the work.

It has already been noted that malocclusion is generally accompanied by lack of development and when the physiology of tooth movement is understood, it will be acknowledged that rapidity of movement is undesirable, for nothing is more stimulating to nature while building bone than the gentle pressure in tooth movement. Doubtless many a dentist who does any of this work has been approached with the question of correcting the malocclusion of a single tooth, or even of "just the front teeth." Little thought is given by the laity to the laws of occlusion and they do not realize how mutually dependent the position of the teeth in one jaw is upon those of the other, hence, correction must be done only by removing the cause and correcting the whole occlusion.

The classification of malocclusions reveals to the student of this science the difficulties peculiar to each class and some orthodontists would be glad if they could handle but one class—say, Class I, and let the other fellow have Class II. I speak of the recognized classification in three great classes. But correcting malocclusion doesn't end in correcting, but that important phase of the work, viz.: retention, comes upon the scene and demands our most painstaking care and thought and must be followed by another period of time that nearly, if not fully, equals the time consumed in the correcting.

Quite an important element in the success of this work is found in the co-operation of the parents. The parents should be given to understand that the child must be encouraged to endure some inconvenience and they should not let the parental nature lose itself on sympathy or pity, making the child feel abused, but rather stimulate the child by encouraging its bravery and developing its appreciation of what the result will mean in later life.

The operator must avoid hasty work as much as possible and endeavor to give every encouragement himself to his little patient. Prophylactic work and the use of sprays can be made so attractive to children that they will forget much of the annoyance they have experienced because of the pleasant finish at each sitting.

What it will cost in annoyance or pain might call for a brief explanation of what will for the most part constitute the appliances to be used. In a general way we can assure the patient they will not be hindered in eating by the use of appliances covering the roof of the mouth. The adjustment of the molar clamp bands and the labial bow or arch with here and there a Magill band, with lug or spur for rotation, might place before our patients a simple but truthful description of what will be needed.

The first and foremost requisite for the use and guidance of the operator will be accurate models of both arches of teeth, best obtained from plaster impressions.

Oftentimes the placing of the clamp bands is attended by some annoyance, especially if the molars and bicuspids are in very close contact. The tying of a ligature of silk, such as is used nowadays instead of brass wire, in such a manner as to act as a wedge between the teeth, passing through at the gum line and making a loop, left for a day or two will gain space for the more ready fitting of bands previous to cementing them in place, which, of course, must be the final act in the adjustment of these parts of the appliances. It is deemed wise not to atempt to adjust too many parts at the first sitting. The impression made at the first sitting for this work is vital to a freedom of the operator at subsequent visits and the patient is drawn into the work by these easy stages that give the operator command of his case and make him master of the surroundings, thereby he can require the patient to give such attention to his directions that the work in hand must have first place and all engagements and appointments be kept with scrupulous promptness. With the observance of such rules and regulations, it is possible for a limited amount of time to be devoted from the days of general practice to orthodontia, and in smaller cities this method can be carried on successfully.

Having obtained good models as above mentioned, and having given some time to the study of occlusion and malocclusion, the orthodontist or operator in this work can give an idea of the approximate expense that the patient must stand financially. No case should be started without some understanding along these lines, and some orthodontists, I am told, do not fix a definite sum, but make their charges by the visit. If the sum be fixed and agreed upon—a payment of not less than one-fourth the entire sum should be required as the advance payment. This elicits the interest in the case from the start that only such procedure can develop and maintain. Stated periods of payments are advisable and a final payment on the case at the time of the placing of the retainers. Such understanding at the start makes matters clearer and the operator is thus stimulated in his work that he may feel conscientiously entitled to payment because of the progress shown.

RETENTION IN ORTHODONTIA.*

BY DR. J. A. BURRILL, CHICAGO, ILL.

It will be impossible, in the time at my disposal, to do justice to any phase of orthodontia so important as retention. I will, therefore, confine myself to a brief outline of the underlying principles, supplementing my remarks with a few illustrations of the practical application of these principles, treating the subject entirely from the standpoint that the active part of the correction of malocclusion has been accomplished, and that the teeth are within the normal influence of the forces of occlusion.

Retention is the application of a force that will resist the tendency of the teeth to return to their original positions, and hold them within the influence of the normal forces of occlusion, those forces being (1) the reaction of the inclined planes of the cusps of the teeth when the jaws are closed; (2) contact of the approximating surfaces; (3) harmony in the size of the arches; (4) muscular action of the lips, cheeks and tongue.

Lack of comprehension of the requirements of retention always means failure, even after correct diagnosis and treatment, therefore in my opinion it is the most important as well as the most difficult phase of orthodontia. Yet I do not wish to be understood to say that failure in final results is always due to poor retention, for like any other disease, the original cause, if not removed, will reproduce like results. Constant mouth breathing will disarrange the most perfectly corrected malocclusion no matter how well or how long retained, and unlike other diseases there is always a tendency to return to original conditions even after the cause is removed and that tendency must be overcome by artificial means.

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*Read before the Illinois State Dental Society May, 1911.

To explain why there is that tendency would necessitate the consideration of the tissue changes due to tooth movement and cannot be taken up at this time.

REQUIREMENTS OF RETENTION.

(1.) Efficiency; retainers must resist all tendency of the teeth to return to their original positions.

(2.) Retainers must not be rigid; rigidity is detrimental to retention. There must be spring enough in the appliance to allow each individual tooth to do its own work with as little assistance from the other teeth as possible. A tooth and its surrounding tissue, as well as any other tissue, will degenerate from disuse and therefore must be allowed to do its own work.

(3.) Retainers must be adjusted in such a way that they will not hinder nature in her efforts toward normal development.

Doctor Noyes, in his paper on the "Index of Personality," read before this society last year at Springfield, clearly brought out the way in which the mechanical influence on the developing teeth within the jaw produced bone development, development which would not have taken place without the mechanical influence of the developing teeth. He also stated the physiological fact that bone development would take place in response to artificial mechanical stimulation. The reaction of the inclined planes of the teeth is a mechanical influence, Fig. I shows you what this influence has done in a practical case under proper retention.

A and C are two cases which show the growth that takes place in the palate in the region just mesial to the second bicuspid, after proper expansion and retention. B and D show the growth in the region just distal to the first molar. E and F show the change in the palate just posterior to the incisors.

This development must not be retarded by too rigid appliances. Also I wish to state that this development is better for the final results than if the teeth had been forced into this position and retained there rigidly.

(4.) For the esthetic effect retainers should have simplicity and be as inconspicuous as possible, but these must not in any way interfere with the efficiency of the appliance.

(5.) Last but not least by any means, retainers must form as few retention centers for the lodgement of food as possible. They must be as nearly self-cleansing as they can be made. But the best possible retaining appliances should be watched to see that the patient is keeping them clean and in good order.

In the appliances that I will illustrate to you the points of contact between the appliance and tooth, except where bands are cemented in place, are on the lingual where they are washed more or less by the food as it is being masticated.

APPLICATION OF APPLIANCES.

In retention, as in treatment of malocclusion, the mechanical application of the appliances must be studied with great care, especially in what may be termed a working retainer or one that is adjusted in such a manner that it will move the teeth still more in some direction.

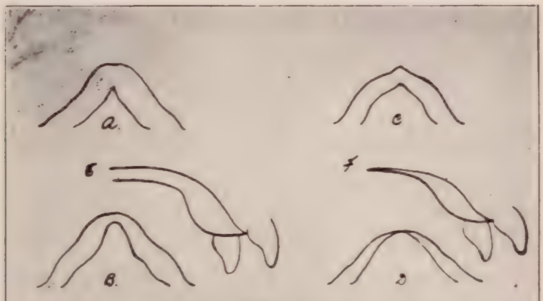


Fig. I.

Each case varies so in detail that I will attempt to give here only a few of the general principles, dropping a hint now and then as to how the minor details may be taken care of, such as the rotation of individual teeth.

I have made these drawings to illustrate to you diagrammatically the construction and application of the forms of retainer that have been most successful in my hands.

I will take up the discussion of these drawings in accordance with the Angle classification.

For the retention of Class I cases (Angle) in which the arches have been widened and the incisors moved labially a wire arch is made to conform to the lingual contour of the teeth and is soldered to the screw-posts of the clamp-bands as shown in Fig. 2, A. This will hold the size and symmetry of the arch. B shows the relation this lingual arch should bear to the incisors, upper or lower. For the retention of individual teeth that have been rotated a combination of bands and spurs is so arranged as to require as few bands as possible.

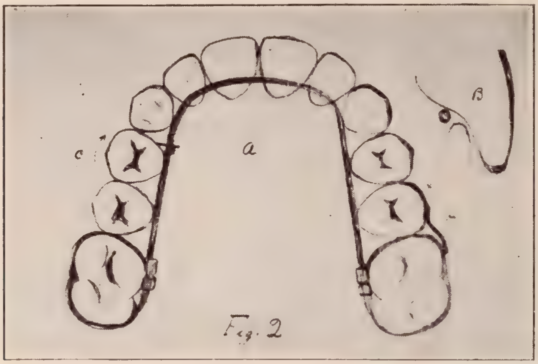


Fig. 2

In Fig. 3 are shown four illustrations of how incisors, upper or lower, may be retained from rotation. A and B show lateral bands with lingual or labial bar and spurs so applied as to retain a rotated condition of the four incisors shown in incisal view in A I and B I respectively. C shows how two bands, a spur and a labial bar may be applied to retain the condition represented in C 1, where all four incisors have been rotated but the centrals have been rotated in opposite directions.

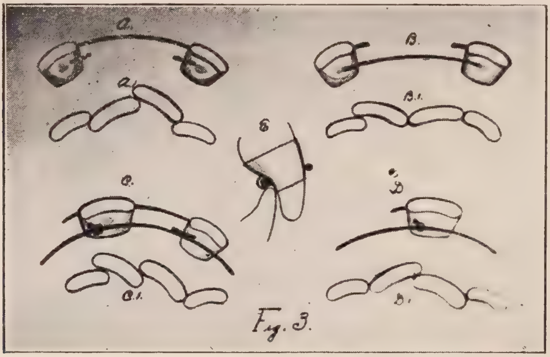
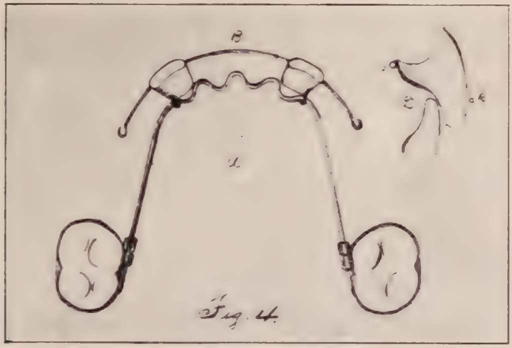
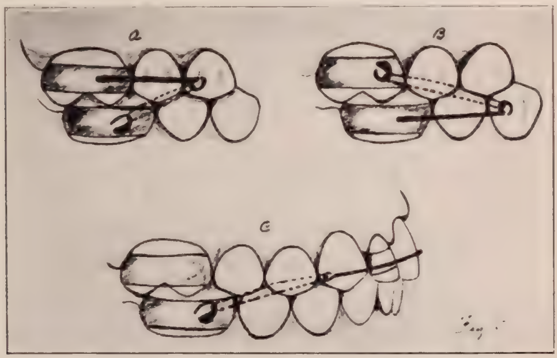


Fig. 3.

The central band is attached to the lingual arch by means of a lingual spur that is bent around it (lingual arch). This holds the labial bar and lingual arch parallel to each other to retain the lateral that is not banded. D shows the use of one band to retain two centrals, represented in D 1. A labial spur on the band engages the mesial of the other central, while a lingual spur is bent around the lingual arch. E shows the relation of the band and spur to the lower incisors. In Fig. 2, C and D show the use of bands and spurs to retain rotated cuspids and bicuspids.





For the retention of Class II cases (Angle) in which the mesio-distal relation of the arches has been corrected the lingual arch soldered to the screw-posts of the clamp-bands is used for upper and lower arch to retain the symmetry and size of the arch as shown in Figs. 4 and 6.

Retention of rotated incisors is the same as in Fig. 3. The mesio-distal relation is taken care of as shown in Fig. 5, A and C, the dotted lines indicating rubber intermaxillary ligatures, these ligatures to be of a size to exert little or no force except when the jaws are opened, when they will exert an active force which will stimulate bone development and growth.

In Fig. 4 the lingual arch is bent in scallops in the incisal region so that the arch is resting at the gingival of the teeth and the scallop raises up over the interproximal gum tissue. A1 and B 1 show the relation of A and B to the incisor teeth. This is so arranged that A, I acts as a fulcrum and there will be a tendency to carry the roots of the incisor teeth forward by using the intermaxillary rubber ligature as shown in Fig. 5, C. This is particularly adapted for Class II, Division 1.

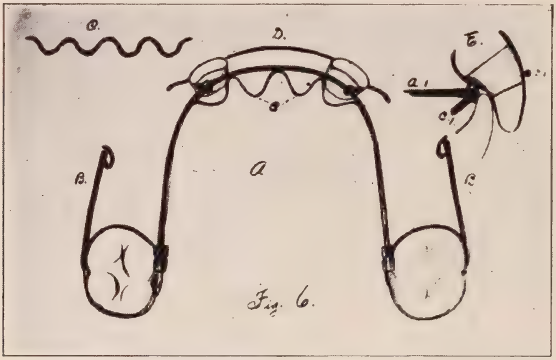


Fig. 6.

Fig. 6 is designed for Class II, Division II, cases where the incisal over-bite has been shortened. A is the usual lingual arch. B, B are extension hooks for intermaxillary ligatures as shown in Fig. 5, A. At C is shown a wire so bent as to form, when soldered to lingual arch A, an inclined plane for each lower incisor as shown at C 1. This forms a bite-plane and makes use of the occlusal force to retain the depression of the incisors. The lingual spurs on the lateral bends are bent around the lingual arch which it holds parallel with the labial bar and will distribute the depressing force to the centrals as well as the laterals.

For the retention of Class III cases (Angle) or cases in which the lower teeth have been moved distal in their relation to the upper teeth, the lingual arch is used on upper and lower jaws with the appliance shown in Fig. 4, B on the lower incisors and the inter-maxillary ligatures shown in Fig. 5, C just reversed, or a combination of Fig. 6 A and B on the lower jaw and Fig. 2, A on the upper jaw with hooks on the buccal of the clamp-bands for the inter-maxillary ligatures, used as in Fig. 5, B.

Figs. 7 and 8 show what may be called an active retainer and are so constructed and applied that they will change the axis of the incisor teeth. Fig. 7, B shows a section of the lingual arch retainer with two small springs soldered to it in the direction of the axis of the lateral incisor. The lingual arch is adapted to the incisors near the gingival as shown in Fig. 4, D, with these two small springs projecting downward and engaging with their hooked ends small loops on the lingual of the lateral bands (shown at C) made to receive them as shown in A and D. The labial bar being near the incisal edge as shown at E takes care of the centrals. This appliance should be so adjusted that when it is sprung from the position of the dotted lines to its position on the teeth it will exert a force that will change the axis of the incisors from the position F to F 1.

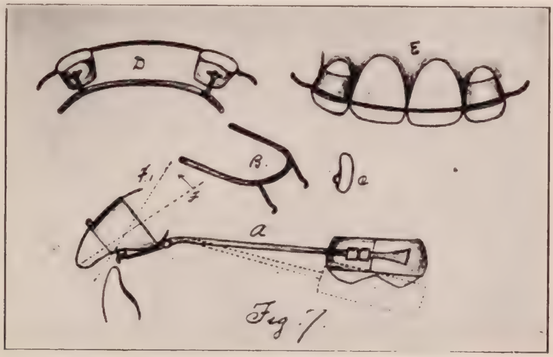


Fig 7.

Fig. 8 is the same appliance so changed as to make the fulcrum on the incisor teeth lower down near the incisal edge so that the position of the root will be changed but not the incisal edge.

There is a small spring for each incisor with a cross bar at the end to engage the teeth near the gingival, as shown in B. Lingual spurs on the lateral bands at C are bent around the lingual arch as shown in B, thus holding the incisal of the teeth unchanged while the roots tip forward as indicated by dotted lines D to D, 1.

These appliances are interchangeable and may be applied to either upper or lower arch as required.

The writer uses iridio platinum wire exclusively for retainers. For the lingual arch 19 gauge wire is used. The labial bar is made from 22 gauge wire and the spurs from 22 or 24 gauge wire as desired.

All of these appliances are applicable to either upper or lower arch and constitute the mechanical principles and their application in the retention of malocclusions.

After our appliances are all satisfactorily adjusted and we have succeeded in retaining the teeth in the positions we wish them the question arises, how long must we keep these retainers in place in order that the teeth will remain in normal occlusion after the appliances are removed. Too short a period of retention no doubt has been responsible for a great many failures in orthodontia. This is a question that each operator must answer for himself in each individual case that he treats. A few of the most important features we must consider in determining the length of retention are as follows:

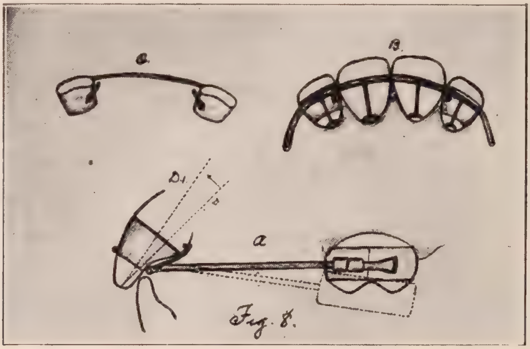


Fig. 8.

AGE OF PATIENT.

The younger the patient the less the bony structure of the jaws and process will have been changed in tooth movement. If a tooth is guided into its place during eruption rather than having been allowed to erupt fully in a malposition and then been forced into place, the process is built up around the tooth in the normal way and the retention is simple, if necessary at all.

The more the bony structure around the tooth is affected in tooth movement the longer the time required for retention.

THE HEALTH OF PATIENT.

The tissue of a healthy child will respond to treatment more readily than that of one who is not in perfect health. Firm hard gums and the condition that goes wtih them will necessitate less retention than the teeth surrounded by thick, puffy, loose gum tissue. Regenerative processes take place much more readily under healthy conditions.

AMOUNT OF TOOTH MOVEMENT.

The farther a tooth has been moved the longer will it take nature to rebuild the process around it to hold it in position.

In my opinion it is folly to move the teeth of an adult to any great extent and expect them to stay put unless by the necessary insertion of permanent bridge work or something of the kind there will be permanent retention. The natural forces of occlusion will not retain the teeth perfectly after any considerable amount of movement even in a young child, if those teeth are moved after they are erupted fully. Yet the natural forces of occlusion are the real factors in the final success of the treatment of malocclusion. The length of the period of retention will vary from one to two and one-half years' duration, depending on the foregoing consideration.

THOROUGH AND HONEST DENTISTRY.*

BY DR. E. T. EVANS, DECATUR, ILL.

In this the busiest day of the world's history, when time seems to fly more swiftly than in days gone by; when the spirit of restlessness and hurry is everywhere, and the one who does not go at high speed all the time is soon left behind; and when the thought of the "almighty dollar" is uppermost in the minds of the people, and the "get rich quick" microbe has infected the masses, it is almost inevitable that some of our own profession, in common with many others, should be swept into questionable practices. Is it not therefore fitting that we should stop and consider our condition, lest we fall too deeply a victim of this malady, and fail in our endeavor to serve our patrons with honest dentistry?

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*Read before the Illinois State Dental Society May, 1911.

Dishonesty comes primarily with yielding to the temptation to save time, and effort, or to make money; but in this day of full opportunity the man in dentistry who does not *know* the best way and makes no effort to inform himself, is as much dishonest as the one who does less than he knows; ignorance, from merely being a handicap, has come to be positively criminal.

Much has been written in the past, and more will be forthcoming, on the technique of dental operations, and the history of procedures that have proven successful in the hands of our foremost men, and the profession has applauded, and then far too many have returned to their work and forthwith forgotten, or neglected to put into operation what they heard or saw. And it is with the hope of causing an awakening along this line, rather than the presenting of anything new or unique that this paper is offered.

In our early days in the profession we had clinging to us the teachings of our masters to such an extent that it was only occasionally that one willfully did less for a patient than would be expected by the strictest adherent to the right, and at this time in the individual's career he is usually honest, and also thorough to the extent of his ability, for he is doing his best at the task before him, following the most approved methods, his only shortcoming being a lack of experience.

As the months lengthen into years, the influence of the master diminishes, and being compelled to stand alone, with no preceptor to guide, and no one to share his responsibility, the resources of the individual are developed, and it is then that his true worth begins to be revealed. It is then that many a fellow strays away from the path of honesty and right doing, tempted by the allurement of a lucrative practice, and the desire for wealth, into that downward path which leads to professional suicide, namely: quackery. In his ads. he tells of his great skill, great thoroughness, great gentleness, and care, great painlessness, great speed, great charity, and also great honesty. Of all these he boasts but says nothing of his absolute disregard for the truth, nor of his habitual maltreatment of teeth, absent root-fillings, and abominable cavity preparations, to say nothing of the ill-advised, ill-fitting crowns and other quackery with which you are all so familiar. And all this done, not for the good of the patient either physically or financially, but for the good of the quack and the increasing of his bank account; who while he makes the greatest boast of honesty and thoroughness is most deficient in these two requisites of a good practitioner. And it is for this cause and not for the monetary consideration that the honest and thoroughly ethical man would have him out of existence. For I believe you will bear me out in the statement, that the quack really makes more business for us than he takes away; hence it is only for the good of an unsuspecting public that he is openly condemned. Which is still further proven by the fact that the ethical practitioner is willing to take him into his society and help him be a man, and put his feet on the firm foundation of honesty and integrity, whenever he will turn from the error of his way, and "bring forth fruits meet for repentance."

But this is not the one whom we will reach today, for he is not here, and the foregoing is only as the "horrible example" of what will come to the man who strays afar from the path of right.

But what is honest and thorough dentistry? To be honest in dentistry is to do for your patient in every case by word and action even as you would be done by. Thoroughness goes even farther, for the practitioner of dentistry centuries ago who made pills out of garlic and saltpetre and put them in the ear, on the opposite side of the head from that in which the aching tooth was located, to stop the pain, perhaps was honest, but we would hardly call him thorough. Or, as in more recent years when decay was left in cavities rather than expose the pulp; or, the placing of gold shell crowns on the anterior teeth, may have been honest at that time, but in the light of today would not be called thorough or up-to-date. Hence we say that to be honest and thorough one must not be content with the things he learned yesterday, but must ever be alert to learn of the advancement that is being made in every branch of the profession. As Ex-President Roosevelt said: "The law of a worthy life is fundamentally the law of strife." "It is only through labor and painful effort, by grim energy and resolute courage that we move on to better things."

I know a professional man who would not join a local society, and gave as his reason, that he did not propose to give all his competitors the benefit of his learning and experience. The fact is that he needed what he could get from the others much more than they needed him, and today he belongs to that great company of "Has-beens and Never-wases." If there is one thing more than all others which will cause one to stagnate and become a back-number, it is to become self satisfied; thinking he knows all there is worth knowing in dentistry, leaving his journals, if he takes any, unopened, and to habitually absent himself from dental meetings, where exchange of ideas is paramount. No one in our day ever has kept up, neither will they, by so doing.

It is within the memory of some of our members when the exchange of ideas, by the writing of papers or the giving of clinics by men in the profession was unheard of, and one practitioner would pay another for the privilege of watching him operate. Everything being done to conceal from each other their modes of operating; and of necessity the profession made little or no advancement. Even so will it be with the individual today who does likewise. There is an old saying: "If you would have friends, show yourself friendly." This same rule applies to our work. If you would have your fellow-practitioner give you his ideas, be ready and willing to give yours. Reciprocity works good even in dentistry. Don't be a sponge and just soak in from the other fellow and never give out unless you are squeezed. This is not honest. Be a man always ready to do more than your share and the returns will be ample. As Lowell has said: "The longer on this earth we live and weigh the various qualities of men, the more we feel the high, stern featured beauty, of plain devotedness to duty. Steadfast and still, nor paid with mortal praise, but finding amplest recompense for life's ungarlanded expense in work done squarely and unwasted days."

As was stated at the outset *our* greatest trouble is not so much being negligent of our opportunities for hearing and seeing the better things and methods, but in our lack of applying them. No one in this society would reckon a man as an honest and thorough practitioner who did not believe in "extension for prevention" in cavity preparation, and yet how often we see, from the hands of those who *theoretically* believe and admit the wisdom of such procedure, cavities prepared as though they knew nothing about it. *They need awakening.* For, judging from the work we see in the mouths of people from our own and other states, it is appalling to see what little regard is paid to this fundamental principle in good filling; the dismissing of patients, after having inserted fillings or operating. And yet if the question were put to the profession it would receive almost unanimous endorsement.

But cavity preparation is no exception; look at the unprepared roots that are wearing crowns! Are we to suppose that the men placing those ill-fitting things knew no better? And patients disfigured with gold shell crowns on the anterior teeth! Do we mean to say that the men doing such things would wish to be done by, even as they are doing? And how shall we excuse the absence of root-fillings, the lack of treatment of septic canals before cavity crowns, whose teeth need scaling far more than they needed the fillings, and from whose gums pus is flowing to such an extent that we know the teeth will soon be lost unless treated, and still we say or do nothing? Or, when we neglect our opportunity for impressing upon our patients the necessity of prophylaxis, are we guiltless? Is not all this lack of thoroughness, due to carelessness and dishonesty, more than to lack of knowledge? Is it possible that the prevailing spirit of the age, already referred to, has grasped us to such an extent that it is dulling our sensibilities of right and wrong? I trust not, but rather that we simply need awakening to our responsibilities and danger.

I am glad that my paper does not close here, for I am not a pessimist as the foregoing might indicate, but an optimist. For I know there are hundreds, yes thousands, of honest, thorough and capable dentists among us today, and that members of this society stand in the fore-front of that valiant company. Men who know no halfway method of doing things, or if knowing it scorn it. Men who do to the limit of their ability the work before them, never wavering from the rule of doing unto others as they would be done by. Men who sacrifice time, money and pleasure for the good of humanity, and strive in every way possible to advance the efficiency of their profession, willing at all times to give to you and me the result of their labor, that through us as well as through themselves humanity may be blessed. And can we do less than take these gifts and use them? Not putting off till tomorrow, but do it today; for, in the words of David Starr Jordan, "Today is your day and mine, the only one we have; the day in which we play our part. What our part may signify in the great world we may not understand, but we are here to play it and now is our time."

No one can afford to do less than the best that is in him, for whether his dishonesty is known to others or not, there is a reaction from it in his own life which cripples his character and dwarfs his opportunity of being all that he might.

Let us then be men, professional men worthy the name, going to the limit in thoroughness and honesty in all things. Then shall we more than fitly fill the place, and more truly exert the influence which we should, in the position we occupy by virtue of our profession. Doing for others, not only in a professional way, but in every way what leads to that which is higher and nobler.

"Be noble, that is more than wealth,
Do right, that is more than place
Then in the spirit there is health
And gladness in the face."

PROCEEDINGS OF SOCIETIES.

ILLINOIS STATE DENTAL SOCIETY, FORTY-SEVENTH ANNUAL MEETING, HELD AT PEORIA, MAY 9, 10, 11, 12, 1911.

DISCUSSION OF THE SYMPOSIUM ON ORTHODONTIA.

Dr. Fred B. Noyes, Chicago:

Mr. President: I expect I am to confine my remarks to the first two papers. In regard to the paper of Dr. Harned, I can only emphasize what he has said, and anything which calls our attention to the influence of the reaction which is produced by a deformity which the average child is not responsible for upon the development of character deserves our most careful consideration. Any one who has had any considerable experience in orthodontia may find incident after incident to illustrate the effect of the correction of a marked deformity upon the entire disposition of the individual. You may see a little youngster who has been called ugly mug by his schoolmates, and twitted at every recess because of his appearance. He develops a misanthropic attitude to the whole creation, is defiant to his teachers and to the whole surroundings because of that ridicule which he does not deserve, and if you change his face, remove that deformity, his attitude to the whole creation takes on an entirely different phase. That is one incident.

Again, men have always associated certain types of faces with certain physical characteristics and mental characteristics because they are *necessarily* associated. We have only begun to realize, I believe, that there are real factors back of these associations. Humanity in general regards a receding, underdeveloped lower portion of the face as indicating weakness. An individual that has such a face is weak in character because the forces which develop this type of the face are weak in muscular action. The strong use of the muscles of the jaws, the full distribution of the forces of occlusion through the instrument of normal occlusion, these are the factors which develop what is called a strong face; while a deficiency in such use leaves its influence, shows deficiency, and you read back of the deficiency the causes that produced it. If the occlusion prevents the full use of these forces, or disturbs their distribution, although the individual may be using every force available to him, and have the force of his personality, the under development results nevertheless, and the deformity which results is interpreted as being due to the weakness of muscular action which often produces similar effects. But in that case, however, the individual is supposed not to possess force while in reality he may. We might spend a whole afternoon following out these phases of the subject, but we cannot do so.

In regard to the second paper, I shall speak of only one factor in connection with it. The essential proposition, I take it, is what shall be the attitude of the dental profession to orthodontia as a specialty? Is orthodontia to be recognized and supported by the dental profession throughout its whole general practice as a specialty, or should most of the cases of orthodontia be done by the general practitioner? I have always believed that orthodontia would have to be done by some general practitioners, but that is not the point. The proposition which is before the dental profession to settle is, what shall be the general attitude toward this proposition? In small cities, and in country communities, the general practitioner must be the only practitioner; he must take care of everything connected with the welfare of the teeth for that community, but in the large cities, and in the middle sized cities especially, what is to be the attitude of the dental profession to this proposition? Gentlemen, I take it that is a matter for the dental profession to settle, and not for the orthodontist as a specialist to have very much to say about. I believe, however, it is very important, and ought to be very carefully considered by all general practitioners. The development of orthodontia in the last ten or fifteen years has an important relation to it. Orthodontia today is not what it was fifteen years ago, and the general practitioner must recognize that fact. Orthodontia is not moving teeth, it is not the correction of irregularities of the teeth simply. It is very much more than that when you consider, first, the relation of the teeth to the development of the face. That one proposition should be made to apply to the discussion of every paper presented in this symposium. It applies to the problems of psychology, and to the problems of the practitioner in small cities with reference to orthodontia. It comes in under the execution of orthodontia, and in the retention and permanence of the results obtained. It will make a great difference to the dental profession in the future as to how that problem is considered; whether in the middle sized cities each individual practitioner does his share of orthodontia, giving it a small factor in his consideration, or whether they take the attitude of selecting one man who should make orthodontia a major proposition in his practise, a major study in his dental thought, and give him the opportunity to do so by sending their cases to him, or whether each one will keep his cases for himself, giving them little consideration and a very imperfect study. I believe firmly that the best results for the dental profession, and for the orthodontists, and for the community, will result by the concentration of this department of practice under the influence of men who give it special attention, in every community that is large enough to do so, and every community that is large enough to support a specialist in medicine is large enough to support a specialist in dentistry. You may crave the variety that orthodontia cases may give to the routine of practice, but, gentlemen, there is plenty of variety in general dentistry for the man who has the eye for it. There is too wide a scope for us. I would say the greatest fault with our whole profession has been that we have been obliged to spread out over too many things and have not gone deep enough into any of them. We do not study caries of the teeth closely enough. We do not study pathology of the pulp closely enough. We do not study the pathology of suppurating tissues closely enough. I have said before and I will say it again, the general practice of dentistry does not equip a man for the practice of orthondontia. Orthodontia requires for its execution theoretical considerations which do not apply in the practice of general dentistry. It requires for its execution technical skill which would never be acquired in a lifetime of general dental practice, and for these reasons the highest results are to be attained for the benefit of the community by the men who will give special thought to these subjects. I would say, that if you are in a community in which a specialist is inaccessible, study orthodontia. Study its principles; study the whole realm of phenomena which are necessary for its practice; study the complicated co-ordinated influences which lead to the development of the bones of the face, which you will not study for the general practice of dentistry. Acquire a special technic which is related to the making of orthodontia appliances of all kinds, a technic which is never used in the general practice of dentistry—never used, I say it again; and make yourselves able to render good orthodontia service. If, however, it comes to a point where the dental profession in your community can select a man to do that work for you, support him, just as the medical profession gets its best results by supporting men in its community who are willing to concentrate their attention upon one class of diseases.

DISCUSSION OF DR. MUNROE'S PAPER.

C. S. Case, M. D., D. D. S.:

I am quite in accord with most of the observations expressed in Dr. Monroe's paper.

In regard to his preference to the use of the term "Malocclusion" instead of "Irregularity of the Teeth," I am aware that this preference has become quite popular of late, and I think almost universally accepted by the dental profession, with the belief or impression that it properly applies to all conditions of the teeth which need their positions corrected. In other words, all teeth which require orthopedic correction are supposed to be in malocclusion.

The reason I have not employed the term in this broad sense, is because there are so many instances in my practice of the most marked dento-facial deformities demanding extensive correction, in which the dentures are not in malocclusion—in other words they are in quite normal disto-mesial occlusion, and often with normal arch widths and alignment. I refer to bimaxillary protrusions and retrusions, mostly from inherent or prenatal causes.

It may be suggested that the term irregularity has no closer applicability to these particular conditions than malocclusion, yet I think it will be conceded that the term irregularity has a broader application referring to the general malpositions and malrelations of teeth that are not in the regular positions according to the rule of the Caucasian type of humanity. Whereas "Malocclusion" is restricted—or should be to the closure of the teeth—the upper upon the lower.

In all cases, however, demanding correction other than those referred to above, it is certainly proper and perhaps more euphonious to speak of them as in malocclusion. My only contention is that the expression, "the practice of correcting malocclusions," is not synonymous with, nor does it necessarily imply the whole practice of orthodontia or dental orthopedia, because in the most advanced practice of orthodontia we correct far more than the occlusion of the teeth, and with frequent attainments that are quite as desirable and necessary.

I am pleased to heartily indorse Dr. Munroe's advice in regard to early care of children's teeth. Every dentist should feel it most sacredly incumbent upon him to become thoroughly posted in regard to the tendency to malocclusion through the premature loss of the deciduous teeth and first permanent molars—and particularly from early diseases of the naso-pharyngeal tract. He should consider it one of his most important provinces to inquire after and become acquainted with the children of his clientele that he may be able to recognize the early symptoms and conditions which demand the services of a rhinologist, and thus free the children at the beginning of these most prolific causes of malocclusion and other physical and even mental abnormalities.

I am not a radical advocate of the recent somewhat popular practice of the very early regulation of all the seeming malocclusions of children's teeth. While there are many instances in which very early regulation is most certainly demanded I realize, as every experienced and observing dentist must have done, that Nature, who has presided over the eruption of teeth of all past humanity, has probably brought about perfect normality according to the universal laws of development in millions of instances which would be considered impossible without artificial means, by a large proportion of the young and enthusiastic orthodontia specialists of today.

It is right here also—in my opinion—that dentists who do not practice orthodontia should consider it a sacred duty to make themselves competent to diagnose the conditions and know the demands before referring their patients of tender years to men who may not have one-tenth part of their experience and judgment in regard to the wonderful processes of secondary dentition, in the growth and development of the jaws. They would then see that many seemingly decided abnormalities were normalities, and Nature's common way of crowding the full sized crowns of teeth into ungrown arches. They perhaps would not be so willing to permit the artificial expansion of deciduous arches to correct malalignments of the incisor teeth in those cases where the jaws had not been interrupted in their development from local causes.

This phase of the symposium—the early regulation of children's teeth—is a subject in itself that involves many important considerations that cannot even be touched upon in a discussion of this kind.

There was one feature in Dr. Munroe's paper relative to appliances and methods of correction which I would not mention were it not that he gives it such decided prominence. He says, "nothing can supplant the use of the regular arch and clamp bands because they can be obtained in different sizes, and adjustment is possible on the very young."

I have never been able to understand why skillful orthodontists preferred clamp bands, when a band can be so easily constructed that exactly fits all the surfaces of a molar, and therefore does not present the same possibility for the washing out of cement along unfitted borders, for the lodgement of decaying detritus, which is always the great danger point in regulating appliances. The clamp screw when projecting lingually cannot be as free from this danger, nor from irritation to the tongue as the smooth polished surface of a specially constructed band. Nearly all molar crowns, besides being slightly conical from their occlusal to gingival borders, possess quite decided convex contours on their surfaces. A clamp band made by soldering attachments to a straight, flat piece of banding material, may be drawn very tightly over these surfaces with the clamp screw so that the band will not come off and yet it cannot fit along its borders as will a band that is properly shaped, festooned and contoured. I consider this of the greatest importance in my practice. Again the buccal tube for the bow or arch is usually soldered with a short bearing attachment which seems to be a commercial necessity to fit all cases. In this particular where stationary anchorage resistance to movement is required, it fails to take full advantage of the resistance afforded by a rigid bow lying in a long bearing attached tube, soldered to the band after it is shaped and contoured.

Further along, in preparing the patients' or parents' minds for the contemplated operation, among many good things, Dr. Munroe says: "The adjustment of the molar clamp bands and the labial bow or arch, with here and there a Magill band, with a lug or spur for rotation might place before our patients a simple but truthful description of what will be needed." Is that all? It sounds very seductive in its simplicity, but is it the whole truth? Would it not be as well to state that the principal motive forces contemplated as an adjunct to the "regular arch and clamp bands" which he so strongly advocates are wire ligatures which require frequent adjustments, and are passed around or are attached to every tooth to be moved, execpt the molars, which bear the clamp bands.

I employ the Angle wire ligatures to a considerable extent in my own practice where applicable and where I feel they can be attached without endangering the future healthfulness of the surrounding tissues, consequently I know something of the difficulties and pain in their adjustments and can imagine what this portion of the operation means when employed as I have frequently seen them as almost the sole motive forces of an apparatus.

I prefer milder methods for young patients, which I believe give less pain, and require far less time and painstaking skill in their adjustments.

DISCUSSION OF DR. BURRILL'S PAPER.

I am pleased to see that orthodontists are becoming fully awakened to the very great importance of retention following the correction of irregularities of the teeth. This is well exemplified in Dr. Burrill's paper which I regard as quite a remarkable production considering the short time that has elapsed since the subject was given him. For this reason I wish especially to compliment him in so bravely coming to the front with the presentation of a paper prepared with such painstaking care and skill and with subject matter arranged into such systematic perfection. While the paper is practically a restatement in its main propositions of the standard teachings of many years, as all papers upon any long practiced department must always be, it presents a fresh arrangement and consequent reinforcement of important principles which should never be lost sight of.

In regard to the influences of occlusion upon retention. Dr. Norman Kingsley more than forty years ago gave expression to the following words, which is but one of the many wise sayings of this father of orthodontia, which we repeatedly see in modern print reclothed and represented in a new and forceful light: "The occlusion of the teeth is a most potent factor in determining their stability in a new position. If occlusion of the teeth can be made to favor the retention of moved teeth in their new position; then considerable movement may be attempted at almost any age desired, but if, on the other hand, the occlusion would be bad with a tendency to drive them to their former positions, then all efforts at regulating would be folly at any age."

Nearly all writers of note upon this subject, from Dr. Norman Kingsley to the present time have emphasized the importance of moving teeth to symmetrically formed and related arches laying much stress upon occlusal relations with distinct interdigitation of buccal cusps. Yet, however important to retention are the forces of an interdigitating occlusion, it is not sufficient in itself as Dr. Burrill has suggested, to overcome marked inherent tendencies, nor often the tendencies to return to malpositions that had long been established before correction was attempted.

The longer I practice orthodontia, I am becoming more and more convinced through the almost endless variety of conditions and happenings that are diametrically opposed to each other, that one cannot lay down cut and dried rules in attempt to prognosticate probable influences and phases of retention however well founded they seem to be upon reasonable and even scientific inferences. Of course there is no harm done in laying down rules, even though, when seemingly well established, the next case or two completely overturns. Nor is there any objection to the expounding of high flown theories based upon a supposedly irreproachable education in the department rather than upon an extensive observation of cases, and which no one would attempt to deny unless he also could look wise and assume to know all the secret workings of Nature's laboratories. These methods, after all, are but the normal ways by which we have succeeded in making the wheels go round in our rapid progress and advancement. The frequent shattering of well established beliefs upon all scientific subjects is the rule rather than anomaly. To become convinced of this, one has but to take a retrospective view of the kaleidoscopic changes of "now you see it and now you don't," that have taken place within the last forty years, aye, within the last ten years in such apparently exact sciences as chemistry and physiology.

In a very large majority of all cases in my practice, from the very young to adults, the teeth remain in very satisfactory position after wearing proper retaining appliances for two years, and frequently a far less time. Yet instances do arise even with cases started at 8, 10 and 12 years, that are a constant struggle for years after correction, to retain; and moreover, when there seems to be every requirement favorable to retention. This is especially true of those cases that have required a considerable disto-mesial shifting of the dentures to a normal occlusion with the intermaxillary force, and pertains especially to the denture whose buccal teeth have been moved distally.

It has occurred so frequently in these cases, I have come to almost dread this operation, and to wish that the case was one that demanded the extraction of teeth in the protruded denture, which as is well known in my practice refers only to the condition in which one denture is decidedly protruded and the other in normal dento-facial relations. In other words, it is far easier to retain the positions of moved teeth when the correction is accomplished by moving extensively only the six front teeth of one denture instead of an extensive shifting of both dentures to a normal occlusion.

On the other hand the teeth of much older patients which have passed through quite extensive movements seem to almost stay in place of their own accord without extensive artificial retention. Several years ago I performed quite an extensive movement of the upper front teeth to correct an upper protrusion after extracting a bicuspid for one of the young ladies in my office. She wore a retaining fixture only six months, and I doubt if she would have needed to have worn it that long, and yet there has never been the slightest return to the former malposition with a perfect closure of the space where the bicuspid was extracted.

This is only one of many instances in practice which goes to show that in our prognostications we really know very little about it.

There are a number of other things I should like to speak about, but which my time will hardly permit.

DR. GEO. D. SITHERWOOD, Bloomington:

The discussion of papers on orthodontia, malocclusion, dental orthopoedia or regulating teeth, whichever you please,—the nomenclature is hardly fully settled yet, is always interesting to me because it deals with that fascinating entity, one of the highest heritages of our race, a beautiful face, in which "the teeth are like a flock of ewes that are newly shorn, which are come up from the washing, whereof every one hath twins, and none is bereaved among them."

With the many valuable suggestions which have already been made by the essayists and those who have preceded me, I am in the main in hearty accord. Having been on the firing line for more than twenty years I can appreciate all the difficulties and draw backs that hinder the accomplishment of any measure of success in the restoration to normal occlusion of malposed teeth. I began trying to move teeth with rubber plates, a practice which is now obsolete, thank God! Next I used Dr. Patrick's ready made bands, wedges, expansion arches, etc., with some measure of success, but the teeth did not always stay put, because I had not learned the value of retention fixtures. After that came some one's make of iron jack-screws large enough to move a small cottage. They had the power, but were forever falling out of place, and were soon abandoned. Next came the molar clamp bands and expansion arch of Dr. Angle, and with these I immediately began to have a large measure of success, because the teeth were moved to place and retained a sufficient length of time so they stayed put. In the meantime a system of moving teeth by fixtures called "a crib," invented and practiced by Dr. V. H. Jackson, appealed to me. I attended a number of his clinics, bought his book and read it, got the material to make the "cribs," but had only indifferent success. Nevertheless I have met some men who succeed with that system. With me it was soon abandoned. The clamp bands of Dr. Angle were displaced for those of Dr. Lukens, not that the latter are superior,—because in some cases I still use the Angle clamp bands—but on account of the plain surface without any projection on the lingual side. In making all plain bands I use the Angle method as fully described in his latest revised work, "Malocclusion of the Teeth." It is simple and effective, and so quickly accomplished that in case of a misfit you throw the band away and make another that does fit in just a couple of minutes. Now when I want to know about making fixtures,—and if you don't make your own fixtures you'll be in the soup most of the time and wish you had never begun,—pertaining to bands, expansion arches, with all the methods of moving teeth by the spring force, I take down Dr. E. H. Angle's beautiful work,—the latest edition, because if it isn't I may be reading something that is already obsolete,—and read, and read, and read until I know all about it. But on the other hand, suppose I'm trying to expand the upper arch where the first and second bicuspids on either side require moving about an eighth of an inch or more buccally and I'm stuck because they don't move! Then I take down from my library Dr. C. S. Case's magnificent work on "Orthopedic Dentistry," and I read: "The positive and intermittent force of a screw will probably always remain the ideal force for the regulation of teeth, as it comes nearer to the physiological requirements of nature." Then he quotes further from Dr. Farrar: "That while apparatus which will exert force continuously, if properly made and judiciously applied will under favorable circumstances move teeth in accordance with the physiological functions of the tissues, apparatus constructed with the view of acting intermittently at will is more scientific because always capable of exactness of control, holding the ground gained, and also permitting the patient, as well as the operator, to take advantage of the benefit derived from the law of labor and rest." Then with the properly adjusted jack screw that arch is spread to the extent required. Indeed, with properly applied screw force the danger is nearly always that you will apply too much force and the movements of teeth, especially in young patients, will be too rapid. But the many ways in which screw force can be applied in moving teeth are almost limitless. It is therefore necessary that one be prepared to thread the standard sizes of wire and blank nuts.

The placing of jack screws and pull or traction bars is not so objectionable to patients as one would suppose. Indeed I have placed straight jack-screws in the mouths of school girls for expanding the arch who felt as distinguished with the apparatus on as the Silesian boy with the "Golden Tooth," mentioned in Dr. Guerini's History of Dentistry.

Any dentist of ordinary mechanical skill can make such fixtures as desirable for each individual case. For the placing in line of a single malposed tooth nothing equals some form of the screw force. For gold plating I use the chloride of gold solution recommended by Dr. Case, using two dry cells for battery instead of continuous electric current, with suitable porcelain lined tray for immersing the fixtures.

For impressions I use any good modeling compound, unless there is much undercut. I know it is not as exact as plaster, but plaster takes too much time for the general practitioner.

Some one may ask how many cases can the general practitioner take care of at a time? Not more than two; he can take care of one with pleasure and profit. As he gains experience and is successful he has more teeth to regulate, likewise the specialist will have more patients because the public have more faith.

I would like to emphasize the danger of not putting on proper retaining fixtures. Ordinarily they are removed too soon and often improperly made. I use the thick band material for retaining bands, and if they are to remain a year or more solder a thin piece of pure gold on the labial surface. If they are to remain only for a few months heavy gold plating will answer. For projections and bars I use the ordinary gold clasp wire, about No. 17 or 18. The end of a round wire resting as a bar or spur on an adjoining tooth is easily kept clean with the brush and floss silk. All retaining fixtures should be securely cemented to the teeth and occasionally examined to see that they are secure. The gold clasp wire is also used for making permanent retaining devices for loose teeth, especially in the staple form, where two or more teeth are bound together.

Dr. Munroe made a valuable suggestion with reference to not placing too many bands or fixtures on the teeth of young patients at the first sitting. Formerly I thought it necessary to wait until vacation time to place fixtures on the teeth of children who were in school. Now I know that is a mistake because with the neatly fitting bands and dainty appliances that one can now make in regulating the teeth of children they are far better served if the correction is made while they are in school, so the retaining appliances can be put on at the beginning of vacation, then they are free and you are free for a little rest and recreation.

In the matter of fees, as mentioned by Dr. Munroe, I always collect one-half at the beginning of the work and the remainder when the retaining fixtures are placed on the teeth. Sometimes I fail to collect the remainder, but have the knowledge that another case of malocclusion has been redeemed, and that I have reached a higher plane of life because of my success, even if one well earned fee has been lost.

I present casts of a typical case of the kind that most often is presented to me in general practice, where the crowding and irregular eruption of the four lower incisors has caused a similar condition of the upper incisors. Three such cases presented themselves in my office in three successive days. I show it because many such can be regulated by the general practitioner, and thus give great impetus to the work of oral hygiene and esthetic appearance of the young people who are crowding the profession and demanding a higher type of dentistry.

DR. W. C. MCWETHY, Dixon:

I can say amen to almost everything that has been said in these papers, but there are one or two words I would like to say from the standpoint of a general practitioner of dentistry rather than as a specialist.

I enjoyed Dr. Harned's paper immensely. I had the privilege of reading it. He speaks of the great opportunity that is afforded members of the dental profession to mould men and women into the condition nature intended for them.

I am not a specialist, but an ordinary general practitioner of dentistry. I have cases that come before me that are not pleasant to look upon, but it is interesting to observe what one can accomplish by patience and perseverance.

A few years ago I remember having as a patient a young woman then in the State Normal School at DeKalb, with a protrusion of the upper jaw. She was a mouth-breather. She was preparing herself to teach school. Every one of you knows what mortification her appearance would have caused her. The pupils would have mocked her before the first week of school had ended. I got her teeth into normal occlusion, so that she went through normal school, taught a year or two, and is today in the University of Illinois, taking an equal position in education and appearance with any of her class.

I had only been in practice a few months when in came a gentleman with his hand on the shoulder of a little boy and said, "Doctor, I want you to look at my boy's mouth. We want his teeth straightened." Well, you could have knocked me down with a feather, because, while I had received the regular course in a dental college curriculum, I had never regulated a case in my life. But it was up to me to see what I could do. So I gathered myself together and finally took impressions and told the father of the boy to come back in about a week. They lived in the country. At the end of six months I had accomplished good results. I believe I could do better now, but I am not ashamed of what I did in that case, and the result was acceptable to them.

As to the fees of the general practitioner. Does orthodontia pay? I believe it pays better or as well as any other branch of the practice of dentistry. I have a case now for a little girl whose father is an ordinary mechanic, who draws a mechanic's wages, and I could not get a good fee for that case. I told him the fee would be no less than twenty dollars or over twenty-five dollars for the appliances, time and all. When I take an impression, put on the appliances, pay for them, and conduct that case through, it will pay me more per hour than anything else I will do for a month or so.

Shall orthodontia be done by the specialist or the general practitioner? That is a question which Dr. Noyes says will be settled by the profession. The dental profession must settle it, but I appeal to the general practitioner, if he has any desire for it whatsoever, to study it and take cases for treatment. I believe also that the specialist ought to be in the smaller cities. It seems to me we are coming close enough together at the present day that we can trust a patient with a fellow dentist across the street if he makes a specialty of a certain branch of dentistry. I believe he will be man enough to do the special work required and send that patient back to the dentist who originally referred the case to him without dabbling in any other work. We ought to be broad enough and big enough to do a thing of that kind.

Dr. Munroe spoke of educating the mothers. I think we should show the mothers our models. Take some of your best cases and show them the models before and after treatment, and it will win them nine times out of ten.

Now, about these retaining appliances shown by Dr. Burrill, I cannot find a word of fault with them. They are neat, they are efficient, they are good, but if I were a specialist in orthodontia and were to teach orthodontia, I should try to determine, for example, some way of finding out how long it will take for a case of protrusion of the jaw to be retained at a certain age. Perhaps these things are done now, but they were not done when I attended a dental college, and I wish they had been.

Another thing I would like to say a word about. Very few students carry through a case of orthodontia in school. We have some idea of how many fillings we put in, how many plates we make, and how many crowns and bridges we build, but we are taught very little about orthodontia. If there were a set of metal moulds that each student could take impressions of and make metal models for a dummy case, he could fit appliances for them and could carry the case through to completion. He would finish the appliance for it under the supervision of his instructor, and write out his notes as to what should be done in regard to the conduct of this case, and these models and the appliances would be of use to him after he leaves college. These things should be done, if they are not already done.

So far as appliances are concerned, every man has his own idea. I use almost everything. Some of the appliances already made are fine for a man engaged in general practice. They will fit, and you can wire them together without stopping to gold plate them. The day is coming when the general practitioner of dentistry will be able to conduct a case of orthodontia to a successful finish, with very little extra time placed upon it. The time to work on these cases, as has been pointed out, is not during vacation. The time to treat them is as soon as they are attending school regularly; then they will meet their appointments, and you can arrange matters so that they will come to your office after school. You can regulate the thing like clock work, and that is what orthodontia needs.

DR. GRAFTON MUNROE (closing the discussion on his part):

I do not think anyone can gainsay the fact that the clamp band is the most perfect fitting band that can be made. It can be contoured with pliers and after adjustment and tightening by the screw, it fits to perfection, and when it is cemented in place it is an absolute fit. That has been acknowledged by the larger number of practitioners who use the clamp band.

In regard to hurting the mouth and tongue, by filing the screw threads of the clamp-band, you can easily obviate any injury by friction of the parts on the tongue so that children repeatedly tell me that it does not bother them at all, even under the tongue, and when thus properly adjusted, lying close to the bicuspids, with extension bar it will even act as an aid in the expansion of the arch.

The doctor also spoke of using brass wire. I have been practicing orthodontia as a specialty for ten years, and I think for four years only, did I use the brass wire, and I have since then excluded it entirely from my practice. I use the Grass silk ligature (imported from Paris) which can be obtained at the Consolidated Depot.

In reference to the number of cases one may have at one time for regulating, Dr. Sitherwood asked how many I have now. I have had as high as eight in my general practice, only giving them three hours on Wednesday and Friday afternons each week. At present I have only two cases, having closed out several others recently.

Dr. J. A. Burrill, Chicago (closing the discussion):

In closing I wish to say that we as specialists have no quarrel with the general practitioner as to what appliances he should use. One man will do good work with one kind of appliance and another will do equally good work with some other appliance, so I would advise the use of the appliance with which you can get most favorable results. One gentleman said that the clamp-band could be taken off and cleaned. I wish to say that there is no other band that can be fitted on molars with the accuracy that is possible with the clamp-band, and if they are properly fitted and cemented in place, they do not need to be taken off to be cleaned nor will they jeopardize the structure of the teeth on which they are placed.

I wish to thank those who have so considerately discussed my paper. There are a number of points that I would like to touch on but the president has said that we are short of time, so I will refrain at this time from saying more.

DISCUSSION OF THE PAPER BY DR. E. T. EVANS ON "THOROUGH AND HONEST DENTISTRY."

DR. S. FINLEY DUNCAN, Joliet:

Honest dentistry is a subject in which we should all and always be interested, and it seems to me that a paper and discussion on the subject at this time is most appropriate. The essayist says that dishonesty comes primarily with yielding to the temptation to save ime, or save effort or make money. But to my mind it is born of downright laziness. As the love of money is the root of all evil, so is dishonesty in dental practice the legitimate fruit of that tired feeling with which so many of our friends are afflicted. The practice of dentistry is irksome, and draws very heavily upon the mental and physical energies of the practitioner, rendering it an easy matter for him to fall into easy ways and careless methods, and no matter how much skill one may possess, unless he has also great moral stamina he will fall into habits that lead to poorly performed operations and neglect of the means that keep a man up-to-date. Thus he not only fails to render value for the pay he receives, but also does his patient an irreparable injury. And while he may be unconscious of any intended dishonesty, yet if he will only stop to consider his action in the light of an awakened conscience, he must see that he has not rendered his patient full value for the remuneration received.

What the essayist says in regard to imperfectly fitted crowns reminds me of an incident that occurred several years ago. One evening, while walking down the street in the town in which I then lived, I met a fellow practitioner. Our conversation very soon led us to "talking shop." Among other things, we discussed the technique of making gold shell crowns. "Well," said he finally, "a gold crown is a pretty good thing." To this I replied, "Yes, it is a good thing, provided the root has been properly treated, well filled, and trimmed so that the crown will fit snugly at the cervical margin." "Well," said he, "it's a pretty good thing if it doesn't fit so d—d well." This dentist was not at that time a member of any dental society, but was evidently practicing dentistry for revenue only. Later, however, he began taking an interest in society work and ever since has been a more or less regular attendant of dental meetings. The result is that his operations have been greatly improved and he has evidently come to the conclusion that if a crown that does not fit so d—d well is a pretty good thing, it is a much better thing if it fits properly. This leads me to speak of the influence which the character of our work has upon our fellows. Who of us ever sees a fine piece of work from the hands of a neighboring dentist and is not inspired to try and do as well or better? And I cannot bring myself to pass this point without bragging again—just a little, of the benefits derived from belonging to our state society. When I, as a young man, thirty years ago, became a member of this society, I saw such beautiful operations, not only in the clinics, but from the hands of its members in private practice, that I resolved to do my best to obtain similar results even if I could not attain such heights of excellence as some of my professional friends. Now if seeing good and skillful operations inspires one to better efforts, does it not follow that the lowering of the standard will have a demoralizing influence, not only upon the individual, but upon others as well? What then is our responsibility in the matter?

First, our responsibility is to our patients. Honesty of purpose and at least reasonable skill in every operation is what they have a perfect right to expect. Second, our responsibility is to ourselves. For any man who fails to render the best service of which he is capable in every case that comes into his hands, is lowering his own standard of professional morals. Third, our responsibility is to our professional brethren. For every skillfully constructed piece of work we turn out that happens to come under the observation of another dentist must be an inspiration to him to "go us one better."

Verily, we are our brother's keepers, and it behooves us for the sake of our chosen calling, which we love for its own sake, to give the best there is in us in every case that falls into our hands. Otherwise we are dishonest with our patients, dishonest with ourselves and dishonest with the profession that is furnishing a livelihood for ourselves and those dependent upon us. The essayist speaks of the dangers of becoming self-satisfied. To my mind this is one of the most deplorable things that can happen to a practitioner of dentistry. The minute one comes to the conclusion that he has nothing more to learn, or that his present attainments are quite sufficient for the dental welfare of humanity, he is on the down grade with the throttle wide open, the muffler cut out, the spark advanced, his dental automobile is gaining speed with every revolution of the wheels and sooner or later will plunge him into the depths of professional darkness forever. And he ought to be heavily fined for speeding his machine, after he gets there. This self-satisfied condition of mind that leads one to hold himself aloof from his professional brethren and from dental societies, and keeps him from reading the current literature of his profession is not only suicidal, but is one of the worst forms of dishonesty. For in this day and age of progressiveness his patients have a perfect right to expect and demand the highest degree of skill, the latest and most advanced methods, the greatest thoroughness and the best materials within his reach. But some weak-kneed brother says, "How are we to get remuneration for all the time and expense of attending society meetings, of buying dental literature, new up-to-date appliances, good materials and the additional time that is necessary in doing first class dental work?" My dear fellow, the people are not all fools, not even those who are *your* patients. They know a good thing when they see it, and are willing to pay all it is worth. With a clear conscience that you have rendered a high-class service, you can look your patient straight in the eye and charge him a fee that will be commensurate with the service rendered. And you will be doubly repaid in the consciousness that there is no dishonesty in the transaction.

Dr. F. H. McIntosh, Bloomington:

As has been indicated by the paper, the great desire for wealth seems to be the incentive to some persons for entering dentistry, and in that great desire some men have overstepped the bounds of honesty and have made a failure of life.

The essayist indicated that a man was little less than a criminal who would not avail himself of every opportunity to fit himself for his calling in life, embracing all opportunities. With reference to this opportunity, or this very occasion, a young man said to me, "I cannot afford to attend the Peoria meeting this year." I said, "You cannot afford not to attend." A great improvement has been made, even since I began the practice of dentistry, in giving forth knowledge gladly. My preceptor's office at one time, I think, had over the laboratory door, "No admittance postively," and a dentist could hardly do a worse thing than to enter this forbidden laboratory. We find that entirely changed today. Who shall be the standard? This is one thing I cannot understand: I have been watching an amalgam filling in a mouth for twenty-five years; it is pitted, unsightly, but has preserved the tooth. I know a person practicing dentistry not very far from me who, if this patient should remove and go right to that operator, would say crown this tooth immediately, it is the only way. I believe in crowning as a last resort. He believes in crowning everything that is seriously decayed, and I do not mean front teeth now, but I mean molars and bicuspids. Who shall decide which is right? I do not know whether conscience is the true moral guide or not, but I am inclined to think so, with abundant knowledge, and as I say to my patients, I place in your tooth what I would place in my own mouth, what I would place in my daughter's mouth, and that is the best that I know how to do. Now, when I first began to practice dentistry, it was not thought good practice to supply a portion made void by decay at the cervical portion of a tooth in bicuspids and molars with amalgam, finishing with gold afterward. But from my conviction I used to follow that method. I did it with honest conviction of its usefulness.

I think the paper is timely, and I am striving to do the best I can with "conscience devoid of offense toward God and toward man."

Dr. O. M. Daymude, Monmouth:

The paper which we have had the pleasure of hearing is just such a one as we should expect from the writer. It is fearless, clean cut, straight from the shoulder, and we are confident that it is not merely theory but actual practice that enables Dr. Evans to bring us these excellent ideas.

I may mention that one of the most marked improvements in these state society meetings is the gradual elimination of the social glass in comparison with a decade or so ago. At that time it was no unusual thing for a considerable number of those in attendance to indulge to such an extent as to materially interfere with their usefulness for the time being, and naturally had its effect on the sessions. At the present time the fact is being more fully appreciated that the drink habit has gone beyond merely a question of morals alone and has become one of business efficiency. This fact is being recognized more and more each year by the larger business enterprises.

All of the most important railroads of the country have become alive to this industrial fact and have placed a ban on the habitual use of liquors or the frequenting of saloons by their employees.

Practically all large employers of labor have come to recognize the fact that no one can habitually use intoxicants without impairing himself physically, mentally and morally—hence have taken action similar to that of the railroads.

It is a fact beyond question that it is impossible for us to knowingly and continuously perform our work in a careless and indifferent manner without a resultant moral decline in our character. An illustration of this comes to mind. Dr. Blank, a dentist well known in this society twenty-five years ago, a man of good professional attainments, but in his eagerness to acquire wealth he became indifferent to the best interests of his patients,—consequently his work was done in a careless manner and the skill he exhibited in former years began to wane until the better class of patients ceased to patronize him and today his name is rarely mentioned by ethical men except in terms of derision.

Regarding the statement made that the unethical dentist makes additional work for the ethical men—I must disagree with the essayist on this point. How many cases we meet where a patient has received faulty dental services—an abscess follows, he loses his tooth and with it his confidence in the efficiency of dental operations to save the natural teeth, and make them useful. His friends are influenced by his experience and they neglect their teeth—until artificial dentures are necessary to replace the lost natural organs. Every case of this kind maks it the more difficult for the ethical man to educate the masses to retain their natural teeth. Hence we consider the quack an unmitigated nuisance in my community. It is too true that many dentists who otherwise look well to the interests of their patients and are strictly honest in other directions exhibit the grossest indifference concerning the condition of the soft tissues of the mouth and its sanitation.

The importance of this department of our work has only recently come to be realized by any considerable per cent of the profession at large. As a result of neglecting this matter the success of many operative procedures in the mouth is jeopardized. To perform this work as it should be done requires special concentration, and skill of the highest order.

Much has been accomplished in this direction in those localities where special study clubs have been organized and the subject taken up in a thorough and scientific manner under competent direction and considerable interest has been awakened and a degree of thoroughness and skill developed quite beyond the ordinary.

At the present time the large number of well conducted dental journals, replete with the latest and best thoughts of the profession and in addition, the state and local societies afford practically a limitless scope for information. Hence, no one is justified in remaining uninformed as to those things which represent the most advanced thought and practice in our vocation. The Illinois State Dental Society could have for its motto no better slogan than the subject of the paper, "Thorough and Honest Dentistry."

"Life is a mirror of King and Slave,
'Tis just what you are and do.
Then give to the world the best you have
And the best will come back to you."

Dr. E. T. Evans (closing the discussion):

As the hour is late, it is out of the question for me to prolong the discussion of this subject. I appreciate very much what has been said in reference to the paper, and the hearing you have accorded this my maiden effort before the Illinois State Dental Society.

CHICAGO DENTAL SOCIETY.

A regular meeting of the Chicago Dental Society was held at the University Building on Tuesday evening, May 16, 1911, at 7:45 p. m.

The president of the society, Dr. F. H. Zinn, occupied the chair.

The program of the evening consisted of "Five Minute Reports of Unusual Experiences in Office Practice," as follows:

Dr. F. B. Noyes:

Mr. President: On account of moving my office it has been impossible to get at my minutes so as to present the report of this case as I would like. I am simply going to tell you of a very rare case, but I cannot show you the pictures, casts, and so on. It is a case of facial hemiatrophy. The patient was presented to me last fall, with a history like this: Age, between 9 and 10; development normal up to four years. From four to six there was progressive atrophy of the left side of the face, involving both the bones and soft tissues. The case was progressive for about two years, and then stationery two or three years, and it is a question whether it is stationary now or slightly improving. When the patient was presented to me on account of the occlusion the first question I asked the parent was how the child was hurt, the appearance being that of a very bad scar involving almost the whole side of the face. The impression I got was that the child had been stepped on by a horse. The history showed no accident whatever, but the development of the condition in the way I have described. These cases are extremely rare, one man in Germany afflicted with this trouble making it a practice for many years to travel around and show himself. As to the etiology, nothing is known. The antrum was practically entirely absent on the left side, the superior maxilla very much atrophied and shrunk, the mandible not as much so. The condition of the occlusion was the result of the atrophy. On the right side the bicuspids were erupting. On the left side the temporary molars and bicuspids were in place, but failing of occlusion by about one-sixteenth of an inch. The skiagram showed that the germs of the teeth were present. The atrophy of the muscles was marked. The presence of the facial muscles was shown by eliciting different expressions of the lips, nose, eyes and so on, so that none of the muscles were entirely absent.

The possibilities of treatment in such a case are extremely uncertain. As far as I have been able to find the probabilities are against the patient. The conditions have improved in the last six months. The skin over the molar bone was drawn and the skin over the lip was parchment-like in appearance, and these conditions have improved. The question that came up in connection with my examination was whether it was possible by the application of mechanical stimulus to produce any bony formation. If it were normal bone we would get bone growth. The treatment was begun last fall, but as the patient lived in Iowa I have had to treat it through an uncle of the child, and I have seen the case only three or four times. We have been able to produce a growth of bone in this case of almost one-eighth of an inch. It was necessary to be extremely careful, as it was evident that the usual amount of force that would be used was entirely too much, as we would produce destruction of bone. As you know, bone growth and bone destruction are always co-incident. Under too much force the destruction would exceed the growth. In regard to the development of the muscles and soft tissues, we hope to work that out in the future. Up to the present the methods that have been employed have been massage, attention to diet and the health of the patient. I hope to bring the case to the attention of the profession at some later time.

Dr. C. N. Johnson:

I wish to report a case of general infection due to conditions in the mouth.

A lady began to be afflicted with some disability, the cause of which seemed difficult to trace. She was apparently poorly nourished, became sleepless, lost in weight, and finally developed a temperature. Her sister who is a physician had frequent examinations made of the blood, and her leukocyte count began to go up alarmingly. In view of the fact that her teeth were bad and her gums painful the sister sent her to me with the remark that she believed much of the trouble arose from her neglected mouth. I found her gums red and sore with not much pus but a great deal of deposit about her teeth and a bad condition of the mouth generally.

The soft tissues were inflamed and so exceedingly sensitive that it was impossible to thoroughly remove all deposits at first. In fact, to touch the gums with cotton was painful. I began treatments by spraying the mouth freely with a warm solution of menthol driven with compressed air through an apparatus for which I am indebted to my good friend Dr. E. M. S. Fernandez. By this means the spray may be forced between the teeth and under the gums so as to thoroughly wash out the subgingival spaces, and the warm menthol is very soothing to the sensitive tissues. I followed this with argyrol crystals around the teeth and in the pockets between them, and in a few sittings I was able to more thoroughly clean the teeth.

From the first the general condition of the patient improved, the leukocyte count began to go down, and her other symptoms subsided. I kept up prophylactic treatment with rotary brushes in the engine and with wooden points carrying finely ground silex twice a week for several weeks. In certain places the gums persisted for some time in their sensitiveness, and it was by no means easy to get the entire mouth comfortable, but the improvement in the patient's general condition from the beginning of the care of the mouth left no doubt of the cause of her trouble.

And I am led to wonder how many obscure cases of general infection are due to conditions in the mouth which are never recognized. It is most encouraging that physicians generally are awakening to the importance of mouth hygiene. In co-operation with the dentist they may be the means of saving many patients prolonged suffering and in some instances to save life by attention to this important matter. Because I believe it to be a fact that many an individual has mysteriously succumbed to a disease which under ordinary circumstances is not fatal simply by reason of a depletion of the vitality and an undermining of the resisting powers due to neglect of the teeth. Aside from the interference with the process of mastication, with all of its consequent constitutional effects, there is a constant poisoning of the system from the putrefactive contents of decayed cavities and from alveolar abscesses which, entering the system as they must, are certain to levy their toll and make manifest their pernicious influence just at a time when the patient on account of the attack of disease needs all his resistive powers to stem the tide.

The dentist who practices his profession by ignoring every thing except a cavity in a tooth is no more doing his duty to patients than is the physician who overlooks the close relationship existing between many of the diseases he is called upon to treat and the condition of the oral cavity. Both can do much more than they are doing in giving better service to the people.

Dr. D. M. Gallie:

Mr. President: I am not prepared to give a history of a case that would be of special interest, but I can recite my experience in two cases that have given me a good deal of concern. In one case the father was a very healthy, wiry specimen of masculinity, showing every evidence of good health, but every tooth in the mouth was eroded. Erosion has cut the lingual roots of the two upper first molars clean off. Every tooth is involved, and the singular thing is that it attacks the lingual surfaces. About ten years ago he started in with the lower first molar on the right side. It became very troublesome, pus oozing around the free margin of the gum. I proceeded to scale the surfaces, but the pus kept flowing. At last he could stand it no longer, and I extracted the tooth, finding that the distal root was badly absorbed. About six months later he came in and one of the lower incisors had started to give trouble in the same way. I tried everything, and scraped until I got down to the dentin. I had to remove that tooth, and I found the same condition there. Now he has lost five teeth in the same way. This is a case that baffles me, and I would like to hear from some one on this subject, if possible.

The other case is a little girl fourteen years old, and when I say she is the most beautiful child I ever saw I mean it. She was sent to me by Dr. Burrill. She has laterals where cuspids should be, and a bicuspid on each side, and nothing more until you come back to the molars. Below she had two little deciduous centrals, and they were so small you could push them right out. She has a cuspid and bicuspid on each side, and what looks like a second molar below. There is no sign of the other permanent teeth. I think it is the saddest case I have ever had in my practice. The younger child is getting her teeth all right, but they are coming in in bunches or rosettes. A peculiar thing is that the boy has nothing on the right side from the cuspid to the third molar. Whether there is some history back of this of course I do not know, but the children look so healthy it seems very strange. I have sent the child to one or two others, and it has been as great a surprise to them as it was to Dr. Burrill and myself. If there is any enlightenment I can glean from the society in regard to these two cases I would be very happy indeed.

Dr. F. W. Gethro:

Mr. President: I have a little skiagraph I would like to pass around. This case is that of a patient about thirteen years old. It has always been my habit to look over the soft tissues before looking at the teeth. I noticed a little serum exuding from the second bicuspid, which tooth had been much delayed in eruption. I could find nothing more unusual, so I had this picture taken. You will see between the molar and the second bicuspid a curved line which would indicate possibly a pin being bent double. Two of these were located in this picture. In reasoning out what could cause this I thought possibly gutta percha points might be responsible for it, and after an investigation this proved to be the case. There was possibly some sort of error in the treatment of that particular tooth. It occurs to me that about nine or somewhat later than that the tooth had been filled with two gutta percha points, one in each root close to five-eighths or three-fourths of an inch long. The trouble was that the roots had absorbed. When I saw that case the gutta percha had been in there some three or four years. I think there is a valuable lesson in that we ought to have in our minds a very definite idea of the calcification of all these roots, absorption, etc. In that connection it occurred to me that it might be a good idea for the society to have printed a little table showing the time of the calcification and the eruption of the temporary and permanent teeth. Some card of that sort would be a splendid reference for daily use. It would not be safe to always rely on these tables, as it is always well to learn the history of the case, and see if there is delayed eruption.

Dr. A. Brom Allen:

Mr. President: I came here prepared with a little specimen, and also an X-ray of an upper right third moalr. This case presents an unusual aspect in that there was not only widening out of the maxilla on the right side, but there was gum tissue all over the tooth. This is a four-rooted upper right third molar, although the X-ray shows only two roots. You cannot always rely on the X-ray for correct pictures, but of course it is of great assistance. It enabled me to tell that the man had pain from the source of the unerupted upper third molar and not from other causes.

Another unusual case was a patient from Evanston with an unerupted upper third molar who had been to many physicians for treatment of the ear, with no relief. She asked me if the removal of the tooth would help her hearing. I stated the removal would tell whether it had any effect on the ear or not. She called me up by 'phone the next day after I had extracted the tooth and said that she heard her friend over the telephone so distinctly that she almost fell to the floor in surprise. The first case mentioned occurred to me as unusual in this respect, that I am suing the patient now for my fee. These cases of upper impactions are much less frequent than the lower.

Dr. F. E. Roach:

Mr. President: The case that I present is one that some of you have seen. This is a case of fractured root. These are not cases we have to deal with every day in practice, but when they do come they are most perplexing. The success of the case depends very largely on the extent of the fracture. If it has extended to the apex then the forceps is the best, but where it has not extended far I think many of them may be successfully repaired. The procedure I want to outline to you is one of the most accurate means it has ever been my pleasure to use. Before the advent of the casting process I think this method was practically impossible. In the case I show you it was a labial fracture, and extended underneath the gum about one-quarter of an inch. The repair of this case was simple. You will note in the first picture we have an outline of the fracture, both labial and proximal. The first procedure is to ligate the fractured ends into position. If a piece is lost the method does not apply. After that is done a groove is cut from the orifice of the canal to the periphery of the root. After having fitted the wax and secured an accurate impression of the end of the root we extract the fractured portion of the root and place it in position on the crown and make an investment of it. This small groove across the end of the root gives us a guide so that we may replace the wax in the proper position. Then we invest it in plaster of Paris. Then we mix some cement, oiling the surfaces first. We then put some of the thin mix of cement around the end, and force this up against the fractured portion of the root, making a model of the root and base of the wax and the fractured portion of the root. This darkened portion represents a piece of the fractured root in position. We take a sharp instrument and trace off the root, so that we have a continuous and flush surface, after which we separate our crown from the cement model and remove the piece of root. That gives us the space between the cement model and the base of the crown of the labial disk of wax fitted to the crown originally. All we have to do is to fill in the space between the cement model forming a continuous mass of wax in this space originally occupied, which gives us an accurate reproduction in wax. We attach our sprue wire and cast this all in one piece. That gives us an exact reproduction of this piece of fractured root, so that we have continuous, smooth connection of the metal with the root. Where the restoration extends beneath the gum there is necessitated the accurate placing of the cement after it has been made. We have our cement model, which is a duplicate of the root surfaces. After we have made our casting we place our crown into position, so that we know we have it accurately fitted before it goes into the mouth.

Dr. W. D. Dunlop reported an experience with pericementitis:

A woman came into the office with a lower third molar causing trouble. I found a large occlusal cavity. Owing to lack of time just then I excavated most of the decay, sterilized the remaining dentin with phenol, and sealed in oil of cloves. The pain stopped almost immediately. Dismissed the patient with instructions to return in three days.

She returned, however, in about eight or nine weeks. There was no history of pain during that time until a day or two previous to the second visit.

In her conversation at this time she informed me of being in about the second month of pregnancy. Whether or not this condition had something to do with the subsequent trouble I do not know, but I am inclined to think that it did.

I found the tooth with my first treatment still intact, was very sensitive to pressure and the cavity extremely sensitive. Modified phenol was sealed in at this time. The pain stopped in a short time, the tooth remaining sensitive to pressure. The patient returned in two days. Tooth was still sore. Arsenic paste (Buckley's formula) on cotton saturated with eugenol was applied and sealed without pressure. Was dismissed for four days. She returned in two days, being in extreme pain and unable to stand it, so she said.

Taking the necessary precautions to maintain asepsis, the pulp chamber was opened. A portion of the pulp was removed. About the lower two-thirds of the pulp in the root canals was somewhat sensitive, so phenol was sealed in, as I usually do for four or five days.

The patient returned, however, the next day, and almost every day for about ten days. I used all the anodyne drugs that I had—eugenol, oil of cloves, Black's 1-2-3, modified phenol, also counter-irritation, oil of cloves and warm air—those for external application—dry heat, a fine stream of hot water, etc. I did not get any results, probably due to the thickness of the process.

I finally decided to remove the remaining portions of pulp as well as I could partially alive, hoping that then I would be more able to get control of the pericementitis.

Sealed in modified phenol again, as I do in almost all cases after removal of the pulp.

At no time was there any swelling around that tooth. There was little or no relief from the pain or soreness since the day or two before her second visit, so she said.

After about two weeks of this almost constant pain, the patient being in an extremely high nervous condition, with the advice and help of her physician, the tooth was extracted during chloroform anesthesia.

I saw the patient the next day, washed out the socket. The pain was entirely gone.

Inasmuch as this is the only case that has given me so much trouble it leads me to believe that had the patient been in her normal condition I would not have had such a time trying to save the tooth.

DR. TRUMAN W. BROPHY:

In the management of cleft palate patients generally, the question of nutrition has been an all important one. So long as there has been literature on the subject, we find that literature filled with complaints in regard to the defective nutrition of children.

The great drawback in the treatment of such conditions has been that they are badly nourished. A child failing to draw the food in the natural act of nursing soon becomes discouraged and refuses longer to try. The only means employed has been to pour the food into the pharynx and compel the child to swallow it. The most authentic history of the feeding of these patients perhaps was prepared by Lawson Tait, of England, who declared that about fifty per cent lost their lives from starvation.

It has long been my desire to devise some plan by which these infants can be properly fed. I devised a nipple some time ago, so made that when placed in the mouth a flange of rubber would extend up and close the space in the palate. It is a very simple thing. It is in the form of an ordinary rubber nipple.

In case the child takes the mother's breast the same condition exists. He cannot draw the food. To meet the requirement when the mother nurses the child herself, the nipple is modified. A little strip of aluminum forming a handle is incorporated into the rubber in such a fashion that this handle can be held by the mother, closing off the open space in the palate with the rubber while the child takes the mother's breast. In this way he takes his food and enjoys it.

There never was a greater fallacy stated than that these children are degenerates. In the majority of cases when they grow up they are as intellectual as other children.

Cleft palate is a failure of union of these parts, due chiefly to pressure. You will find the tongue forced up into the nasal cavity and the mandible making pressure springs the bones apart. The tissues fail to unite because the tongue intervenes. There is not arrested development, but only a failure of union of well developed parts.

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EDITORIAL.

A MISLEADING REPORT.

At the recent meeting of the National Dental Association held in Cleveland, the editor of this journal read a paper which, at the time, he considered a very harmless document, but which was subsequently twisted by a newspaper reporter into an assertion which has caused no end of misconception and a fair measure of annoyance. The Associated Press sent out a report to the effect that the paper condemned the use of tooth powders, pastes and mouth washes, and intimated that the National Dental Association as a body did the same thing. How wide of the mark such a statement was may be seen by the following communication sent in for publication by the officers of the Association.

When the paper was read the author had no idea that a newspaper reporter was within a mile of the place. The following day he started on an automobile trip and did not see his mail for nearly a week. When he did see it he would have fainted had he not been well fortified by the aforesaid trip. The newspaper reports had stirred up a hornet's nest among the manufacturers and other interested parties, and much of the editor's vacation was spent in explaining that newspaper reports are sometimes misleading.

The officers of the National Dental Association have also been subjected to considerable annoyance, and the secretary, Dr. H. C. Brown, has prepared the following statement for publication with the hope that at least the profession may have the real facts in the case:

NATIONAL DENTAL ASSOCIATION.

NOTICE TO THE PROFESSION.

In justice to the Association, Dr. Johnson and the profession, it has been deemed advisable to send a statement to all the Dental Journals for publication in their October issues in order that the Dental Profession, in so far as possible, may be correctly informed concerning a widely circulated report that the National Dental Association took official action at the Cleveland meeting condemning tooth powders, pastes and mouth washes.

Dr. C. N. Johnson of Chicago read a paper entited "Mistakes, Common and Uncommon," from which the following is quoted, this being the only part of his paper which refers in any way to this question:

"And in this connection there is another mistake which the profession is fostering and to which attention should be called. This is the constant use of mouth washes among our patients irrespective of whether or not they are indicated. I am far from condemning the legitimate use of carefully prepared stimulating and antiseptic solutions in those cases where the abnormal conditions in the mouth indicate such treatment, but mouth washes should be limited to their proper indications and should be eliminated from use in healthy mouths. Their use in these cases has a tendency to do more harm than good. If the mouth is healthy there is always the danger of disturbing the normal balance by the introduction of agents which tend to interfere with function. The maintenance of function is the surest way to health, and consequently the healthiest mouth is the one in which function is most fully performed. The best stimulant for the gum tissue and the best polisher of enamel is the friction of food in the function of mastication, but unfortunately mastication is not always carried out to its fullest efficiency. Therefore we use tooth brushes to make up this dereliction, and the moment we begin to depend upon solutions and washes to do the work which should be done mechanically by mastication and the brush that moment the tissues begin to deteriorate. I am not arguing against the use of a wash where the tissues are inflamed and the gums puffed and swollen, nor am I criticising, as some have done, the mouth washes which are on the market today, many of which seem to be carefully compounded, but I venture to suggest that if the patient could be prevailed upon to have all the irritants removed from the teeth in the way of deposits and the gums properly stimulated by massage and the friction of food and the brush that the restoration to health would be just as certain as by the use of drugs and it would be more permanent. But just here is the rub. It seems so hard to get the average individual to properly care for the teeth and gums by mechanical means unless some powder, paste or wash is prescribed as an incentive. In this particular these agents have been useful. They have been the means of inducing many negligent individuals to take care of the mouth when otherwise it would have gone neglected. Most of them are prepared with a pleasant flavor and they leave the mouth with a refreshed and wholesome feeling as is so often expressed by patients.

"But the whole tendency of our teaching should be in the direction of preserving the normal balance between function and health rather than glossing over conditions by a false reliance on drugs. It is too much akin to the habit of using powerful and not always pleasant perfumes as a substitute for good honest cleanliness of person. The individual who carries with him the odor of the bath has little need for musk, and he whose teeth and mouth are kept constantly clean is seldom obliged to resort to the 'doping' of drugs."

In addition to this the official stenographer writes that one of the discussers stated "that water was the best thing to use in brushing the teeth."

This paper was read before section two and did not come up before the Association in any other way, and no official action, as some of these reports would seem to convey, was taken by the association.

Fraternally yours,

A. R. Melendy, President.

H. C. Brown, Rec. Secy.

THE EDITOR'S DESK.

TOURING IN BETSEY'S HALF-SISTER.

I.

To those of my readers who have struggled through the painful procedure of reading my former vacation articles, the name of "Betsey" is quite familiar. That was the car in which I made my first long automobile trip, the novelty of which still remains with me, although it is now three years old. Since then I have had three new cars, the apparent extravagance of which would seem to argue the utter abandonment of reason when the automobile habit gets a firm hold on a man. And yet I have had much pleasure and small regret in this extravagance. During the past summer I planned another extended tour in a half-sister of Betsey, a car which more nearly fits my ideal for touring than any of her predecessors. She has room for seven passengers, a long wheel base, forty-inch wheels, and ample power. The high wheels, with shock absorbers both front and rear, make her a very easy riding car, and the four doors—but this is not a technical description for an automobile catalog so I will desist.

A party of us made up of three cars were to leave Chicago and drive to Cleveland, Ohio, to attend the National Dental Association. There were Don and his family, consisting of Mrs. Don, and Billy Boy, who ran the car, and in the third car were Brom and his wife. The occupants of Betsey's half-sister comprised the same party who have taken so many trips together. They were the Mater who still has the habit of waking up the family in the middle of the night to see if we are all comfortable, my "Indian Girl" with the same old level head which took her safely out of the Iroquois fire years ago, and the "Collector," now grown to be the tallest of the three and full of the drollest speeches a maiden of sixteen ever used. As for me I crawled in behind the wheel of the car at 5 a. m. that morning a tired and nervous wreck from over work and under sleep, and sat behind it for the 400 miles to Cleveland, and stepped into the Hollenden Hotel fresher and more rested than I had been in months. Talk about a tonic for tired nerves—give me the wheel of a car that is right and let me take my dear ones out over the rolling country, through little towns, and past everchanging scenes all day, and at night let me tuck them snugly to sleep in some delightful little inn with snowy sheets and the rustle of green leaves just outside the open window. And in the morning—oh those early morning rides when there is such a freshness in the air, when the birds are all singing and the engine is purring such a rhythmic tune, when you are rolling over hill and through dale with the breezes fanning your cheek and filling your lungs, and the very essence of life is pulsating through every fiber of your being! And then—but here I am dreaming away as usual instead of telling my story.

Don's other name is "Effervescent Enthusiasm" and he was surcharged and running over with it on this occasion. "Now," said he, before we started, "no fast running on this trip. We don't want to burn up our tires and 'kill it' as if we were out for a record." I of course acquiesced, but smiled internally because I knew Don, and I also knew the lure of a long trip like this. Don and I had planned to take our cars over into Canada after the Cleveland meeting and spend our vacation touring in Ontario. So I knew well enough that I should have Don's weak spots before we parted.

As the three cars started along the Sheridan Road that morning it was only a brief spell before Brom pulled out his little roadster and sailed past us with the air of a Barney Oldfield. It was as if to say, "You fellows with your lumber wagons will have to bite my dust this trip." Away back in my Sunday School days, if my memory serves me, there was a saying to the effect that, "Pride goeth before a fall," but if any of my readers imagine that I am going to tell on Brom—well we will talk about that another time.

"We are having a wonderful get-away," thundered Don's magaphone voice as we were skimming through the downtown district. Scarcely had the words left his lips when a couple of policemen jumped out in front of his car and waved for him to stop! Usually after a vacation a man does not have a superabundance of money to spend for rare works of art but in thinking it all over now I would willingly pay a goodly sum for a living likeness of Don's expression at that moment. It was plain to be seen that his idea of our "get-away" had suddenly taken a chill. Visions of the police court, a tedious delay, and a heavy fine were written all over his face, because, be it whispered, Don has had "experience." But in this instance it transpired that all the police wanted was a morning ride as far as their beat, and when Don realized this his face widened again, and he awoke the downtown echoes with a hilarious, "Gee! I thought we were *pinched!*"

As we turned into one of the south side boulevards Don's car slackened and as I came along side he asked if I had seen a ring lying in the road. I shook my head and drove slowly on after Brom while Don went back. He had seen a ring glistening in the sunlight. It proved to be a small brass collar lost from an automobile, but nothing daunted Don claimed that it was a talisman of success for the trip and proudly wore it on his finger. At the German building in Jackson Park we picked up George who was to ride with Don as far as Cleveland. George proved to be the Indispensable of the party. He was so universally useful that I am at a loss to know how we should have managed without him. If a wish were ever expressed for anything George had it under our nose before we could see whence it came. He was omnipresent on the trip and always thoughtful of the comfort of others. What a blessing such an individual is on an automobile trip, or on any kind of a trip or whether there is a trip or not!

Just as we had nicely reached the country and were bowling along comfortably Don stopped his car, which was ahead, and in stentorian tones announced that it was time to *eat*. The girls of the party all had the foresight to put up lunches and so we sat by the roadside and gabbled and ate and vowed that there was nothing equal to this. One of the virtues of the automobile is that you are not tied down to any schedule. You start when you please and you stop when you please—sometimes even when you do not please, as Brom could vouch—but never mind about that just now. I want to caution my readers against the evil of growing impatient.

"Now," said Don with much animation, "we won't have to stop for anything to eat 'till well into the afternoon. I believe in making a run while you can." I saw the fever of speed creeping into his countenance, and had to smile. "Well, you see," he remarked, "tomorrow it may be *raining,* and if there is anything I hate it is running in a *rain*. We had really better make the most of it today." And I acquiesced, partly because I like to run some myself, and partly because I acquiesced in everything Don said on that trip.

We called a few minutes at Valparaiso where we found an excellent garage with most accommodating attendants. In fact, during our entire trip we noted that the garage business was on a much improved basis over that of three years ago. The industry is so developed that business is done on better lines and garage men are learning that good service is what counts in this as in all other lines of effort.

It is always well to enquire of garage men the best route to the next important stop. The Blue Book is ordinarily most reliable but sometimes the conditions have changed since the volume was issued and it is advantageous to obtain the latest information. We had planned to go to South Bend via La Porte, but were informed that the roads were badly torn up in reconstruction work and were advised to go by way of Michigan City. This proved a most delightful run, and after a short stop for refreshments and gasolene at South Bend we hummed away once more into the country. It had been our plan to stay all night at Goshen, but I could see that Don was somewhat unsettled as we neared the place, and finally he said: "It's so early and—tomorrow it may be *raining,* you know." So on we went through Goshen, Ligonier, and several small towns 'till we reached Kendallville for the night.

Speaking of small towns recalls an amusing incident which occurred in one of them. Don and Brom had gone on ahead and I was following slowly with "Sister." A group of citizens were standing beside the street watching the cars go through, and one old gentleman who evidently thought that two cars were all that could possibly pass that way in one day deliberately stepped out into the street in front of us the better to watch the receding cars ahead. With all the "tooting" that I could give the horn he was oblivious 'till a precocious wee youngster in the crowd took in the situation. And here was exemplified the difference between the old and new in phraseology. Instead of saying, "Hurry, get out of the way," he frantically danced up and down crying, "Beat it! *Beat* it! BEAT it!" It was difficult for us to keep our faces straight 'till we got past the crowd, but the kiddie had saved the day. At Kendallville we found a nice clean hotel kept by a former Chicago man, and had good service generally.

(*To be continued.*)

BOOK REVIEWS.

A Manual of Dental Prosthetics. By George H. Wilson, D.D.S., formerly Professor and Demonstrator of Prosthetics and Metallurgy in the Dental Department of Western Reserve University, Cleveland, Ohio. 12mo, 507 pages, with 396 illustrations. Cloth, $4.00, *net.* Lea & Febiger, Publishers, Philadelphia and New York, 1911.

The mere announcement of a work on this subject by Dr. Wilson is all that is necessary to whet one's appetite for a perusal of the volume. The author has long been prominently identified with this department of our work and has gathered into this volume the essence of his knowledge of the subject.

It matters not whether the practitioner does his own prosthetic work, or sends it to a laboratory. The study of this book will be advantageous. It contains the very latest ideas of the science and art of dental prosthesis, and we cheerfully recommend it as in every way worthy of its distinguished author, and the publishing house which has sent it forth in such excellent form.

CORRESPONDENCE.

[The following correspondence between Dr. J. W. Shedd and Congressman Mann has been handed to the DENTAL REVIEW for publication, as throwing some light on a matter of interest to every practitioner of dentistry.]

Chicago, September 9th, 1911.

Hon. James R. Mann,
Washington, D. C.

Dear Congressman Mann:

Enclosed herewith please find Senate Bill No. 1342, introduced by Senator S. M. Cullom of Illinois, extending certain letters patent for crowns and bridges to James E. Low for a period of seventeen years after the passage of this act.

Please note this patent expired March 15th, 1899 (twelve years ago.) While on the surface this bill seems harmless, it is a vicious and far reaching measure, being promoted by a few unscrupulous persons, who wish to extort royalties from the 40,000 dentists in the United States, and is very unjust to every person requiring dental service.

Before any such bill is passed, I urge your most careful consideration and full investigation of the subject. We also hope for a full hearing on the matter. The above is the sentiment of every dentist in the country. Sincerely yours,

J. W. SHEDD.

(Copy of the Bill.)

62d Congress—1st Session—S. 1342.

IN THE SENATE OF THE UNITED STATES.

APRIL 20, 1911.

MR. CULLOM introduced the following bill; which was read twice and referred to the Committee on Patents.

A BILL

To renew and extend certain letters patent.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That certain letters patent for an alleged new and useful improvement in dentistry, dated March fifteenth, eighteen hundred and eighty-one, and Numbered Two hundred and thirty-eight thousand nine hundred and forty, granted to James E. Low, be, and the same is hereby, renewed and extended to James E. Low for the term of seventeen years from and after the passage of this Act.

Chicago, September 11, 1911.

Dr. J. W. Shedd,
132 North Wabash Ave., Chicago.

My dear Dr. Shedd:

I have your kind favor in reference to the Cullom Bill, Senate Bill No. 1342, introduced by Senator Cullom at the recent session of Congress, to extend the James E. Low patent.

I am very much surprised that Senator Cullom should introduce this bill. I do not believe it has any merit. I looked into the matter once and concluded it would be a gross abuse of power for Congress to pass the bill. A similar bill has been urged for several years. I shall certainly fight the bill and I feel sure it will not be passed by Congress. While ordinarily I do not like to express opinions in advance, yet this bill is so flagrantly bad that I promise you it will meet with determined opposition if it comes up in the House of Representatives while I am a member. I again express surprise that Senator Cullom should have introduced it.

Yours very sincerely,
James R. Mann.

1350 First National Bank Bldg.

PRACTICAL HINTS.

An Ideal Antiseptic:—My ideal of an antiseptic is an agent that acts only as an antiseptic; an agent that will inhibit the growth of bacteria and at the same time will stimulate the activity of the animal cell, thus promoting phagocytosis.—*J. P. Buckley, Chicago.*

To Dress Down an Amalgam Filling:—To dress down the proximal portion of an amalgam filling at the time of insertion, take a thin strand from a short piece of crochet silk, tie a knot near one end of the same. Insert this fine strand or thread of silk between the filling and proximating tooth. By drawing the same buccally and lingually you can trim to the proper contour, and by drawing the knot through the interproximal space it will carry with it any small particles of amalgam that may have become lodged there.—*V. W. Watt, Chicago.*

A Common Mistake:—In many mouths, where teeth have been lost, extensive fillings inserted, and sometimes several crowns used, the case later demands attention and the common mistake is made in treating the case with regard to the individual tooth rather than a consideration of the general condition resulting from former dental operations. These cases demand a treatment from a broad basis and a general view point that will restore the upper and lower arches to as near as possible, their former relation to each other as well as their greatest usefulness in mastication.—*Dr. W. D. N. Moore, Chicago.*

Isolate the Tooth:—No pulp extirpation can properly or safely be done without first isolating the tooth or teeth with the rubber dam placed so as to absolutely exclude the fluids of the mouth as well as the breath of the patient which is always laden with micro-organisms, both pathogenic and non-pathogenic. After being in place the rubber dam and exposed teeth should all be thoroughly cleansed with alcohol and dried with a blast of air. This having been done, the instruments to be used in opening the pulp chamber must have been sterilized since last using them.—*A. F. Rasmussen, D. D. S., La Crosse.*

Suggestions in Gold Work:—Never attempt to insert gold foil into a cavity in which there is a single inaccessible point. Always extend anterior cavities sufficiently on the labial to allow free access to every portion. Most of the failures in this location may be traced directly to the fact that the operator endeavored to "avoid the display of gold" and did not extend the cavity sufficiently to properly insert and finish the filling.

How much better it would be to extend fully the first time and thus avoid recurrence of decay, and replacing with larger fillings than would have been needed, had the original operation been a success.—*P. G. Puterbaugh, Chicago.*

Preparing Root for Bandless Crown:—In preparing a root for the reception of a bandless crown where you want to carry the root a short distance under the free margin of the gum, grind the tooth to the gum margin with an ordinary stone and then take an old diamond disc such as is used for grooving porcelain inlays and hold the flat end against the end of the root. By keeping water on it you can carry the root down under the free margin of the gum any distance without lacerating the tissue.

These discs have diamond dust on the end as well as on the edge, so don't throw them away when they are of no more use for grooving porcelain inlays, but keep them for preparing roots for crowns.—*A. F. Kenney, Chicago.*

A Good Investment:—A good investment should be so compounded as to make it possible to pour it into the flask, and have plenty of time to know that the wax is thoroughly surrounded. A thin investment also allows the contained air more easily to escape. When I was using a thick investment and manipulating it hurriedly, as was necessary, I would find pimples on the gold far in excess of what I thought was caused by the contained air in the plaster ingredients, and I came to the conclusion that gases must be evolved after the investment was in its place in the flask. By making a proper mixture of ingredients, it now allows me to manipulate the material so that any contained air or gases are allowed to escape before the flask is filled.—*W. H. Taggart, D. D. S., Chicago.*

The Use of a Normal Salt Solution:—In the treatment of diffuse suppurative peritonitis, where the abdominal cavity is full of pus, and where it is impossible mechanically to remove the pus, that is, by sponges, or swabbing, and where antiseptics and germicides are contraindicated, a normal salt solution may be freely used to irrigate the peritoneum. A larger percentage of recoveries, in acute general peritonitis, results from the use of normal salt than from any other treatment.

The mechanical cleansing of wounds commends itself for obvious reasons. There is no form of treatment for suppuration which is so satisfactory as the mechanical removal of the pus. Any germicide which will kill a bacterium will kill a leucocyte; will kill a fixed connective tissue cell, and will kill an osteoblast. Any agent which will retard the growth of a bacterium will also retard the progress of a leucocyte or of a fixed connective tissue cell or an osteoblast.—*F. B. Moorehead, M. D., D. D. S., Chicago.*

Occlusion Plus Articulation. No. 5:—We have learned by experience that not only must the models be correctly mounted to the articulator, but the articulator must reproduce a movement similar to that of the mandible. This has been made possible by the "Twentieth Century Articulator."

Having mounted the models to the above mentioned articulator, by using the face bow, we are ready for the next step.

The bite plates are removed from the models, the bite gages placed in the molar region on the lower base plate and then placed in the mouth.

The patient is requested to protrude the mandible slightly. In doing this the bite plates are separated at the heels and maintained in this position by the bite gages. We replace the lower bite plate on the lower model, release the controlling spring on the articulator, loosen the clamps controlling the condyle slots and gently force the upper model to its position in the upper bite plate. This will determine the position of the condyle slot according to the natural condyle path.—*J. E. S.*

A Great Cleansing Agent:—For office use a stock of the saturated solution of sodium chlorid should be prepared from the common table salt. It has been urged by some that chemically pure sodium chlorid be used; but the fact seems to be that the table salt harmonizes more closely with the salts found in the blood and body juices than pure sodium chlorid. This saturated solution is necessarily sterile because of its poisonous properties to all forms of life, both animal and vegetable. It can, therefore, if well inclosed, be kept on hand for considerable time. A much smaller receptacle can be filled from time to time for daily use. From this, the diluted solution should be made for the occasion when needed, in every instance by the addition of the proper measured amount of the saturated solution to warm sterile water. No attempt should ever be made to keep the dilute solution on hand because of the imminent danger of microbic contamination, for in this form micro-organisms will live in it more readily than in pure water. Indeed it is practically the solution which experimental pathologists use for the preservation alive for the longest time separated from the body, the tenderest cellular elements, for purposes of study. It is the most congenial fluid to living cells that has been devised. It is this that gives it its great value as a cleaning agent.—*G. V. Black, M. D., D. D. S., Chicago.*

MEMORANDA.

SOUTHERN ILLINOIS DENTAL SOCIETY.

The twenty-sixth meeting of the Southern Illinois Dental Society will be held at Belleville, Ill., on October 25th and 26th; all ethical practitioners are extended a most hearty invitation to attend. F. A. Neuhoff, Secretary, Belleville, Ill., Room 33, First National Bank Building.

NORTHERN ILLINOIS DENTAL SOCIETY.

The twenty-fourth annual meeting of the N. I. D. So. will be held on the third Wednesday and Thursday, 18th and 19th of October in Rockford. A program of unusual interest has been prepared and members of the profession are requested to be present. Edmund Noyes, President; F. H. Bowers, Secretary.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Michigan State Board of Dental

Examiners will be held at the Dental College, Ann Arbor, commencing Monday, November 13th, at 8:00 a. m., and continuing through the 18th. For application blanks and full particulars, address A. W. Haidle, Sec., Negaunee, Michigan.

To the Dental Review:

Messrs. Editors, Text Book Writers, Lecturers, etc., why not discontinue from your vocabulary the word "canine," as applied to the human teeth?

Imagine a dentist talking to a young lady about her beautiful teeth, described by Dr. Allport as "when beauty sits enthroned upon her ivory throne"—and tell her she has *canine* teeth.

No, it's too "dog-on-it" bad to apply the name of a brute's tooth to the beautiful human tooth. L. P. Haskell.

AMERICAN DENTAL SOCIETY OF EUROPE.

At the thirty-eighth annual meeting of the American Dental Society of Europe, held at Dresden July 27th to 31st, the following new officers were elected for the ensuing year: President, Dr. T. G. Patterson, Geneva, Switzerland; vice-president, Dr. C. H. Abbott, Berlin, Germany; Hon. secretary, Dr. G. H. Watson, Berlin, Germany; Hon. treasurer, Dr. E. F. Day, London, England; microscopist, Dr. C. F. Bœdecker, Berlin, Germany. The next meeting will be held at Brussels, Belgium, at Easter, 1912. G. H. Watson, Hon. Secretary, 7 Pariser Platz, Berlin, Germany.

NATIONAL DENTAL ASSOCIATION.

There will be a meeting of the Executive Council of the National Dental Association November 4th, 10:00 a. m., at the New Willard Hotel, Washington, D. C.

This meeting is called for the purpose of selecting Section Officers and Committees for the coming year, and was authorized by the Association at the Cleveland meeting. Members desiring to offer suggestions or recommendations, in this connection, should promptly communicate same to any member of Council, or the undersigned. H. C. Brown, Rec. Secy., 185 East State Street, Columbus, Ohio.

NATIONAL DENTAL ASSOCIATION PUBLICITY COMMITTEE.

The dental educational service, now running in the newspapers in Illinois and Indiana, has been accepted by the Western Newspaper Union, 521 West Adams street, Chicago, as a part of their regular service. They are fully equipped to handle this matter expeditiously.

All advance orders that have been sent to me will be filled by the Western Newspaper Union as soon as shipping arrangements are completed for the different states. As this work has now passed into their hands, any, who are interested, should address their correspondence to them. C. B. Warner, Chairman, Urbana, Ill.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

At the twenty-eighth annual meeting of the National Association of Dental Faculties, held at the Hotel Hollenden, Cleveland, Ohio, July 21, 1911, the following officers and committmen were elected and appointed for the ensuing year: President, Dr. C. R. E. Koch, Northwestern University Dental School, Chicago, Ill. Vice-president, Dr. W. E. Willmott, Royal College of Dental Surgeons, Toronto, Canada. Secretary, Dr. George Edwin Hunt, Indiana Dental College, Indianapolis, Ind. Treasurer, Dr. W. Clyde Davis, Lincoln Dental College, Lincoln, Neb. Executive committee: B. Holly Smith, chairman, 1007 Madison avenue, Baltimore, Md.; A. G. Friederichs, secretary, 830 Carondelet street, New Orleans, La.; Dr. W. T. Chambers; Dr. A. B. Starr; Dr. C. C. Allen. Ad-interim committee: Dr. W. Clyde Davis, chairman, Richards Block, Lincoln, Neb.; Dr. S. W. Foster; Dr. Eugene Dubeau. Committee on Law, Dr. William Carr, chairman, 35 West 46th street, New York, N. Y.; Dr. H. C. Miller; Dr. J. W. Smith. Committee on text books: Dr. E. E. Belford, chairman, 1250 East 9th street, Cleveland, Ohio; Dr. C. H. Howland; Dr. D. J. McMillan; Dr. William Crenshaw; Dr. G. B. Snow. Committee on foreign relations: Dr. J. D. Patterson, chairman, Keith Perry building, Kansas City, Mo.; Dr. T. W. Brophy; Dr. H. L. Banzhaf; Dr. H. W. Morgan; Dr. C. R. E. Koch. Tabulation and conference committee: H. E. Friesell, chairman, Pride and Bluff streets, Pittsburg, Pa.; H. L. Banzhaf; E. A. Johnson. Dental Educational Council: H. L. Banzhaf; W. E. Grant; George E. Hunt; J. D. Patterson; H. E. Friesell.

RECENT PATENTS OF INTEREST TO DENTISTS.

990,621. Device for retaining fillings in teeth, William F. Faber, Montgomery, W. Va.

990,218. Fountain spittoon, Rudolph F. Bigalke, Chicago, Ill.

990,519. Tray support, Charles F. Booth, Canandaigua, N. Y.

990,520. Spirit lamp, Charles F. Booth, Canandaigua, N. Y.

990,548. Denture, Alfred Gysi, Zurich, Switzerland.

990,277. Dental instrument, Chapin F. Lauderdale, Lyons, Ohio.

990,320. Manufacture of dental plates, Ivan G. Warren and H. A. Edwards, London, England.

991,313. Dental forceps, John B. Hull, Williamstown, Mass.

991,320. Dental instrument holding and sterilizing bracket table, Lena A. Kent and G. H. Tuttle, Atlanta, Ga.

991,101. Gas burner for dental tables, Theodore Smith, Chicago, Ill.

991,798. Tooth brush, Joseph Orthwein, Suffern, New York.

992,199. Forming dental bridges and the like, Thomas C. Hutchinson, Decorah, Iowa.

987,451. Preparing and coloring plastic substances used as bases in dental prosthesis, Lucien Eilertsen, Paris, France.

987,237. Adjustable work holder, Mathew M. Kerr, Detroit, Mich.

987,383. Grinding, facing and polishing device for mouthpieces, Charles H. Lind, Warren, Pa.

987,203. Artificial tooth, Heinrich Wienand, Frankfort-on-the-Main, Germany.

987,986. Tooth powder container, Arthur F. Hetherington, New York, N. Y.

987,732. Handpiece for dental engines, William T. Lyon, Portland, Ore.

987,808. Dispensing tooth paste, George A. Madison, St. Paul, Minn.

988,361. Vulcanizer, Theodore G. Lewis, Buffalo, N. Y.

988,581. Artificial tooth, Thomas McCullough, Kansas City, Mo.

988,647. Making tooth crowns, Emil Mohr, Cologne, Germany.

989,245. Artificial teeth, Harry A. Gollobin and N. A. Bornstein, Newark, N. J.

989,246. Artificial tooth, Harry A. Gollobin and N. A. Bornstein, Newark, N. J.

989,247. Artificial tooth, Harry A. Gollobin and N. A. Bornstein, Newark, N. J.

989,248. Artificial tooth, Harry A. Gollobin and N. A. Bornstein, Newark, N. J.

989,267. Dental gold cap crown, Irving B. Kenney, Wadena, Minn.

989,540. Dental articulator, Eli Sweet, Binghamton, N. Y.

990,000. Dental plate, Jacob Petry, Pittsburg, Pa.

989,727. Tooth bending attachment, Hayden W. Sage, Grand Rapids, Mich.

989,882. Dental tool, Frank H. Skinner, Chicago, Ill.

DESIGNS.

41,285. Tooth brush, Joseph F. Kress, Philadelphia, Pa.

41,268. Top for dentists' bracket tables, George W. Grant, Bucyrus, O.

Copies of above patents may be obtained for fifteen cents each by addressing John A. Saul, socilictor of patents, Fendall building, Washington, D. C.

THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES.

J. N. Crouse, Chairman, 2231 Prairie Avenue,
The Dental Digest, $2.00 per annum.

Chicago, Oct. 5, 1908.

Dr. Richard Summa, St. Louis, Mo.

Dear Doctor: Yours enclosing circular with reference to the suit for infringement brought by Dr. Taggart against a member of the profession in Washington, D. C., duly received.

The movement is one entirely independent of the Dental Protective Association. Before the Association could take up and defend such suits it would have to be reorganized and put on another basis. Then, too, it is using its funds very close in other litigation and there would be but limited means to do with, were it in its province to take up matters of this kind.

Yours very truly,

J. N. CROUSE.

(This is a verbatim copy. The original is on file at my office.)

Dear Mr. Editor: I request you to publish the above letter because Dr. J. N. Crouse denied before an audience composed of members and guests of the National Dental Association that he had informed me that he had neither funds nor a properly organized association to take up the Taggart matter.

Dr. Crouse stated before the Iowa State Dental Association (Record for July, 1911, page 279), "I had the whip in my hand because I had the association and money to back it," etc. "I knew I could wear him (Taggart) out and he knew it, and his lawyers knew it," etc.

The wording of his letter also indicates a vacillating state of mind. In view of the deal Dr. Crouse finally consummated with Dr. Taggart, the suspicion becomes justifiable that he was even at that time (Oct. 5, 1908) contemplating a perversion of the function of his protective association.

The apparent difficulty of bringing Dr. Crouse and the patentee to an agreement (described in "Record" and "Review") might be attributed to the histrionic talents of the President of the Dental Protective Association.

In a recent paper, which might have been more appropriately entitled, "When is a process patent not a process patent," and sung to the tune of "When is a door not a door," Dr. R. Ottolengui, M. D. S., D. D. S., L. L. D., brought out the fact that Dr. Crouse himself patented a cast filling within the last few years. This probably intensified his compassion for other process patent claimants.

I also possess a letter from Dr. J. N. Crouse in which he informs me that the membership books could not possibly be spared for copying the names of the members.

As a member of his Dental Protective Association, I fail to see any reason why I should not know who my fellow-members are. Therefore I request other members of Dr. Crouse' Dental Protective Association who would like to find out what they have joined to communicate with me.

Yours very truly,

RICHARD SUMMA.

THE NATIONAL MOUTH HYGIENE ASSOCIATION.

OFFICERS.

President—Mr. Horace Fletcher.

First Vice-President—Dr. Eugene H. Porter, Commissioner of Health of New York State.

Second Vice-President—Dr. W. A. Evans, Ex-Commissioner of Health of Chicago, Ill.

Third Vice-President—Dr. Oscar Dowling, President of the Louisiana State Board of Health.

Secretary-Treasurer—Dr. W. G. Ebersole, Chairman of the Oral Hygiene Committee of the National Dental Association, for the past two years.

BOARD OF GOVERNORS.

Dr. Richard Grady, Dr. J. P. Corley, Dr. W. A. White, Dr. H. C. Thompson, Dr. B. Holly Smith, Dr. E. P. Dameron, Miss Cordelia L. O'Neill, Principal of Marion School, Cleveland, O.; Mrs. B. Holly Smith, Baltimore, Md.; Mrs. Ella Flagg Young, Superintendent of Schools, Chicago, Ill.; Prof. Irving Fisher (Member of the Committee of One-Hundred), New Haven, Conn.; Hon. John Beveridge, Council Bluffs, Iowa; Miss Martha Taylor, of Russell Sage Foundation Fund, New York, N. Y.

The Secretary-Treasurer of the Association is also a member of the Board of Governors, making thirteen in all.

CONSTITUTION.

Adopted Tentatively by the National Mouth Hygiene Association.

ARTICLE I.

Name.

This organization shall be known as the National Mouth Hygiene Association.

ARTICLE II.

Object.

The object in forming this organization is to afford an opportunity for the members of all professions and all laymen and laywomen, who are interested in Mouth Hygiene, to unite and co-operate with the members of the National Dental Association in spreading the Mouth Hygiene Propaganda.

ARTICLE III.

Government.

This organization shall be an auxiliary to the National Dental Association, and shall operate under the guidance of the Oral Hygiene Committee of the said Association.

ARTICLE IV.

Officers.

The Officers of this Association shall be a President, First Vice-President, Second Vice-President, Third Vice-President and a Secretary-Treasurer.

ARTICLE V.

Board of Governors.

There shall be a Board of Governors, consisting of twelve (12) active members, to which shall be added the Secretary-Treasurer, who shall act as Chairman of the Board.

ARTICLE VI.

Standing Committees.

The standing committees shall be—Organization, Co-operation, Legislation, Publicity, Education, Membership, etc.

ARTICLE VII.

Membership.

Section 1. The membership of this Association shall consist of Active, Associate and Honorary members.

Sec. 2. Any person who desires to engage actively in the spreading of the Oral Hygiene propaganda shall be eligible to active membership.

Sec. 2. Any person who desires to aid the Association without becoming personally active, and shall pay the annual dues, shall be eligible to associate membership.

Sec. 4. Persons who have rendered special and valuable services or made substantial financial contribution to the support of the work, may be elected to honorary membership.

ARTICLE VIII.

Amendments.

Section 1. After the meeting of 1912, this Constitution may be amended by a two-thirds vote of the members present and voting at any annual session, providing the said amendment has been presented in writing, and signed by five members, at a previous annual meeting.

Sec. 2. Amendments at the 1912 meeting may be made provided they shall be presented in writing, and signed by five members, and sent to the Secretary ninety (90) days before the annual meeting; and, copies of which shall be mailed to the members of the Association sixty (60) days prior to the meeting.

BY-LAWS.

(Adopted Tentatively by the National Mouth Hygiene Association.)

ARTICLE I.

Duties of Officers.

Section 1. The President shall preside at all meetings of the Association. He shall be ex-officio member of all the standing committees, and, shall perform such other duties as usually pertain to that office.

Sec. 2. The Vice-Presidents, in the order named, shall assist the President in the performance of his duties, preside in his absence; and succeed to his office, in case vacancy occurs in the order named.

Sec. 3. The Secretary-Treasurer shall, in addition to keeping all records and funds of the Association, be a member of the Board of Governors and of each standing committee, and he shall keep a careful record of their proceedings. He shall have charge of all correspondence of the Association together with the securing, publication and distribution of all educational matter which is used in spreading the Mouth Hygiene propaganda. He shall collect all moneys due the Association from its members, issuing certificates of membership for the current year. He shall have charge of the solicitation and collection of funds from philanthropic sources or otherwise, necessary to carrying on the work of this Association. He shall endeavor to create an interest in Mouth Hygiene in every section of the Country where it is possible to secure a foothold. He shall, together with the Board of Governors, have the power to make such expenditures as are demanded for the best interests of the Association, and for the purpose for which it is formed. He shall give bond in ———— for the faithful performance of his duties; and, once a year shall submit to a full and complete report under oath to the Board and the Association. He shall establish headquarters for the Association, and install therein a Bureau of Education and Information, collecting, creating and compiling material which will be of assistance to the members in carrying on their educational work. He shall make such use of this material as the Board of Governors shall direct. He shall, under the direction of the Board of Governors, establish a Lecture Bureau, capable of presenting all phases of the Mouth Hygiene propaganda under any and all varied conditions. He must prepare and place in the hands of the active members, not less than thirty (30) days before the annual meeting, a full report of the proceedings and activities of the preceding year.

ARTICLE II.

Duties of the Board of Governors.

Section 1. The Board of Governors, including the Secretary-Treasurer, shall have control of the entire business of the Association. Any member of the Association may bring any matter before the Board of Governors in writing, and shall be notified when to appear before the Board for the consideration of the same.

Sec. 2. The Board of Governors shall elect all active and associate members, and all officers and standing committees, except the President, First Vice-President, Second Vice-President, Third Vice-President, Secretary-Treasurer and the members of the Board of Governors; and they shall make all preparations for the annual meeting.

Sec. 3. All expenditures shall be subject to previous approval by the Board of Governors; but, expenditures for purposes other than those specified herein shall be subject to previous approval by a majority vote of the members of the Association present and voting at the annual meeting.

Sec. 4. They shall have the power to suspend the Secretary-Treasurer from the discharge of any or all of the duties by a vote of nine (9) members, and such suspension shall remain in force until the next annual meeting when the Board must present the same to the Association for action. They shall also have the power to fix the salary of the Secretary-Treasurer. And, they shall appoint annually an auditing committee to examine the books of the Secretary-Treasurer.

Sec. 5. The Board of Governors shall have power to fill all vacancies occurring by death, resignation or otherwise, subject to the approval of the Association by a majority vote of the members present and voting at the next annual meeting.

Sec. 6. Five members, including the Secretary-Treasurer, shall constitute a quorum for the transaction of business.

ARTICLE III.

Duties of Standing Committees.

ARTICLE IV.

Election of Officers and Board of Governors.

Section 1. The election of the President shall occur annually and he shall hold office for the period of one year or until his successor is elected. The President of this Association should, in so far as is compatible with the best interests of the Organization, be selected from among the lay members.

Sec. 2. The First, Second and Third Vice-Presidents shall be elected annually and shall serve for a period of one year or until their successors are elected. The Vice-Presidents of this Association should be selected, in so far as it shall be consistent with the best interests of the organization, from members belonging to the Medical profession.

Sec. 3. The Secretary-Treasurer shall be elected for a period of five years, and shall hold office for a period of five years, or until his successor is elected. His election shall take place at the annual meeting. Only members of the dental profession shall be eligible to election as Secretary-Treasurer. The Secretary-Treasurer may be suspended from the discharge of any or all of the duties of his office by a vote of nine (9) members of the Board of Governors. Such suspension shall remain in force until the next annual meeting of the Association. At that meeting the issue shall be presented to the Association by the Board of Governors. If the suspension by the Board of Governors be approved by two-thirds of the members present and voting, the office of Secretary-Treasurer shall be declared vacant. It shall then be filled by the election of another Secretary-Treasurer.

Sec. 4. The Board of Governors shall at the first election be elected as follows: Two to serve one year, two to serve two years, two to serve three years, two to serve four years, two to serve five years, and two to serve six years. One member of each series of two to be selected from the dental profession and the other from the laity. And, each year thereafter, one laymen and one dentist shall be elected to serve six years, or until their successors are elected.

At the first election, the dental representation upon the Board of Governors shall, in compliance with a resolution passed by the National

Dental Association granting the formation of such an organization, be selected from the members of the Oral Hygiene Committee of the National Dental Association, and they shall serve for a period of from one to six years in the order of the seniority in membership on said committee, that is the senior member to serve six years and the junior one year. At the first election, the lay member who shall first be elected shall serve six years and the others in the order of their election.

Sec. 5. Only dentists who are members of the National Dental Association shall be eligible to serve on the Board of Governors.

ARTICLE V.

Auxiliary Associations.

Section 1. Any State, County or Municipality, desiring to form auixiliary or branch associations, may do so by making application to the Secretary-Treasurer, who will forward copies of the constitution and the necessary application blanks, which when properly made out and returned, together with the necessary fees and dues, will be acted upon by the Board of Governors and a charter issued. The Board of Governors may at any time, for sufficient cause, revoke the charter of any branch association.

ARTICLE VI.

Election of Members.

Section 1. Applicants for active membership, who shall present duly accredited application blanks, bearing the recommendation of a member in good standing, and accompanied by the initiaton fee and annual dues, may become active members upon receiving a majority vote of the members of the Board of Governors.

Sec. 2. Applicants for associate membership, who shall present duly accredited application blanks, bearing the recommendation of a member in good standing, and accompanied by a sum equal to the annual dues of the Association, may become associate members upon approval of the Board of Governors.

Sec. 3. The names of candidates for honorary membership shall be presented to the Board of Governors by ten active members of the Association. Upon recommendation of the Board of Governors they may be elected by a three-fourths vote of the members of the Association present and voting at any annual meeting.

[The Secretary-Treasurer desires to call attention to the fact that the books will remain open for applications for charter membership in this Association up to December 1st, 1911.]

ARTICLE VII.

Initiation Fees and Annual Dues.

Section 1. The initiation fee shall be Three Dollars ($3.00) and shall accompany application blanks together with the annual dues.

Sec. 2. The annual dues shall be Two Dollars ($2.00) per year, and shall be payable to the Secretary-Treasurer on the first day of October of each year.

ARTICLE VIII.

Salaries and Fees.

Section 1. All necessary expenses incurred by the Officers or by the Board of Governors in the transaction of business for the Association, shall be paid out of the funds of the Association.

Sec. 2. The Secretary-Treasurer shall receive a salary of ———— Dollars per year, providing the requirements of his official position shall interfere with his professional duties to an extent justifying the payment of that amount; and, he shall, by his efforts, be able to collect sufficient funds to equal at least twice the sum.

Sec. 3. The Board of Governors shall have the power to fix all salaries.

ARTICLE IX.

Expenditures of Members.

The necessary expenses of any member incurred in rendering service to the Association, under the direction of the Secretary-Treasurer and the approval of the Board of Governors, shall be paid by the Association.

ARTICLE X.

Meetings.

Section 1. The annual meeting of this Association shall be held upon the first day or evening following the close of the meeting of the National Dental Association, and shall be held at the same place.

Sec. 2. The Board of Governors shall meet immediately preceding the annual meeting of the National Dental Association, and shall hold subsequent sessions at the call of the Secretary-Treasurer; but, shall not hold more than two between any two annual meetings.

ARTICLE XI.

Amendments.

Section 1. After the meeting of 1912, these By-laws may be amended by a two-thirds vote of the members present and voting at any annual session, providing the said amendment has been presented in writing, and signed by five members, at a previous annual meeting.

Sec. 2. Amendments at the 1912 meeting may be made provided they shall be presented in writing, signed by five members, and sent to the Secretary-Treasurer ninety (90) days before the annual meeting and copies of which shall be mailed to the members of the Association sixty (60) days prior to the meeting.

ARTICLE XII.

Rules of Order.

All questions not provided for in the Constitution and By-laws shall be governed by Robert's Rules of Order.

OBITUARY.

DR. WILLIAM A. BUSCHO.

The death of Dr. William A. Buscho, 2000 W. Madison Street, Chicago, came as a distinct shock to his many friends and acquaintances. He was taken sick on Tuesday, August 8th, and on the following Sunday, August 13th, was operated upon for appendicitis, dying that evening about nine-thirty o'clock.

Dr. Buscho was born at Morton, Minn., July 5th, 1878. His boyhood days were spent on a farm and attending the district school; but being energetic and ambitious he early decided on obtaining a higher education than could be provided at his native surroundings. He first attended the Des Moines Business College, later he attended the Valparaiso University and following his course at this institution, he entered the Chicago College of Dental Surgery in the Fall of 1901, from which he graduated, receiving the degree of D. D. S., in the spring of 1904.

After graduation, Dr. Buscho located at the corner of West Madison and Robey Sts., where in the seven years since he built up a substantial practice. He was a member of the Chicago Dental Society, the Illinois State Dental Society, and at the time of his death was secretary of the West Side Branch of the Chicago Dental Society. He was also treasurer of the Park Avenue M. E. Church and a member of the Masonic and Odd Fellow Fraternities.

In the death of Dr. Buscho the profession has lost one of its most earnest and enthusiastic members. Though naturally of a modest and retiring disposition, he was always on the alert and ever striving to perfect himself that he might better serve his patients. Such qualities as were possessed by this young man should be emulated and his untimely death is sincerely regretted. J. P. B.

THE

DENTAL REVIEW.

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PATENTS AND PATENT LITIGATION OF THE DENTAL PROFESSION PAST AND PRESENT.*

BY DR. J. N. CROUSE, CHICAGO.

I come before you tonight to discuss some very important questions relative to patents and patent litigation of the dental profession. A discussion along this line seems necessary at this time, because there are so many erroneous ideas in the minds of dentists on this subject. My past experience, I feel, places me in a position to speak with some degree of authority.

Among the questions which I wish freely discussed tonight, are the following:

What is a process patent?

What constitutes a valid patent?

Should an individual dentist take out patents and enforce patent claims?

What is the duty of the Dental Protective Association of the United States toward patent claimants?

With these questions before you, I will now proceed with the discussion of our subject. Except it be the farmer, there is no group or body of men that have suffered more from patent abuse in the past than have the members of the dental profession. In order that you may understand and appreciate the truthfulness of this statement, it is necessary for me to give you some past history and describe the conditions surrounding us and the schemes for getting our earnings before the organization of the Dental Protective Association of the United States, in 1888.

In the year 1851, a patent was obtained by Charles Goodyear on the process of hardening or vulcanizing rubber. This patent was declared valid and was granted to the rubber company largely on its utility. The dental profession paid the royalty for the use of rubber for vulcanizing plates until this patent expired. Then the parties controlling this company took out another patent known as the Cumming's patent. This was nothing more or less than a patent on the different steps in making rubber plates with nothing new or original in it. A process patent pure and simple on which our profession had already paid royalties for the full term of the patent. Before attempting to collect royalty on this patent the rubber company secured a decision in the Federal court validating their claims. The validity of this patent was again tested in the Supreme court and it was proven that the rubber company had hired the attorneys on both sides, and this fact caused the Supreme court to remand this patent back to the lower courts for a re-hearing. An attempt was made to raise money to fight this in the lower courts, but the dental profession was so demoralized and the lack of unanimity in the profession was so great, that nothing was accomplished and the rubber company collected royalty for seventeen years, or the life of the patent. It is a matter of history that many dentists went through bankruptcy to avoid paying the back royalty, and substituted celluloid for rubber which in time proved a failure, and the practitioners of that period, some of whom are still living, paid the rubber company many millions of dollars and that on a patent which would not have been worth the paper on which it was printed if it had been properly tested.

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*Read before the Chicago Dental Society, September, 1911.

After the expiration of the Cumming's patent, another corporation was formed known as the International Tooth Crown Company. The promoters of this company, seeing the favorable condition of the dental profession, they having been trained by the rubber company to pay royalty, and with the skill and experience which comes from long practice, were able to organize just the kind of a company to best secure the object desired and make the dentists do their bidding.

This company soon began giving the dentists the greatest annoyance possible. They had taken out and acquired patents—numbering from thirty-five to fifty—which covered all manner of operations and devices, making it impossible to practice dentistry without infringing many of their patented claims. And having in their employ the attorneys and former agents of the old Goodyear Dental

Vulcanite Company, they were fully equipped to again yoke the dental profession and make them pay royalties in much greater amounts and by much more disgraceful methods than were practiced by the old rubber company. They were issuing licenses and bringing suits as early as 1886, and at this time had a number of dentists under injunction. Those securing these licenses were obliged to agree, in writing, to recognize the validity of all the patents owned and controlled by this corporation.

One of the various methods they adopted was to get clinicians appointed at society meetings to instruct and work up an interest in methods on which they held patents, also to employ instructors to go amongst the dentists and teach their patented methods. Then their agent following had more definite knowledge as to whom to approach as infringers. After securing as many licenses as possible in a town, the agent would, by way of reward to the victims, insert this notice in the local papers:—

DENTAL NOTICE.

This is to certify that.........office No..........street is our only licensee, to make and to furnish to patients in the city of ....any tooth crowns or bridge-work, so-called, manufactured under the patents of the International Tooth Crown Company. Said patents are construed to cover the most practical forms of artificial dentures now commonly known as crown and bridge work.

All persons are hereby cautioned against obtaining any such artificial dentures from any dentist not licensed, as none are authorized except by written license of said company.

The full legal penalty will be promptly enforced against all dentists, as well as their patients, making unauthorized use of any such patented denture.

A reward will be paid by said company to persons furnishing it with any cases of bridge-work of one, two or more crowns or bridges made by any dentist not licensed by this company.

(Signed) INTERNATIONAL TOOTH CROWN CO.

By way of enforcing their scheme, suits were commenced against several of the prominient men in different cities. Before the Protective Association was organized a large number of suits had been begun. Nor was this all, as five or six other companies had been formed with numerous patents on various methods of practice. Suffice it to say that it appeared to me as though our peace, manhood and prosperity were threatened on all sides.

After much thought and planning the Dental Protective Association was first presented to the profession at a meeting of the Odontographic Society of Philadelphia, in December, 1888.

It must be remembered in this connection that the unsuccessful attempts in former years to get united action on the part of the profession made it more difficult to form this association, and the lack of encouragement and the urgent advice given me by leading minds to abandon the scheme would have discouraged a less hopeful individual. However, I kept on working and pleading with the dental profession all over the United States, and at the end of eight years, I had succeeded in getting 6,000 dentists into the organization.

Long before this, however, the association had retained the services of Offield & Towle, a well-known firm of patent attorneys of Chicago, and had taken charge of the defense of different dentists who had been sued by the hundreds all over the United States, and succeeded in getting their licenses revoked and stopped the paying of their license fees, as a large number of the dentists were paying enormous revenues to the Crown Company. In several instances the royalties paid were as high as $400.00 or $500.00 a year, and in a few cases even more than that.

In the suit brought by the International Tooth Crown Company against Richmond and others the record shows that everything was shaped so that the decree would make the Low bridge patent the only legitimate patent and all other bridge patents infringements. This would have been hard to understand only for the fact that the International Tooth Crown Company had previously acquired the Low patent, consequently this patent was the chief one in contention, and the only one on which they had a court decree in its favor.

In order to get this decision of the Federal court, which had validated the Low bridge patent, reversed, we felt it necessary to take a large amount of testimony, which we did, taking the testimony of fifty-five witnesses, scattered all over the United States, from Maine to California, and all of these witnesses I saw in person and from them learned what they could give us in the way of testimony, before taking their depositions before a Master.

In all instances, I was present at the taking of this testimony before it was presented to the Court. This testimony amounted to over 500 pages, closely written, and we succeeded in the end in getting the decision reversed and putting the Crown Company out of business.

Had the Dental Protective Association not been in existence and the individual dentist left to himself, he would be at the mercy of these patent sharks and every man practicing dentistry today would be paying hundreds of dollars in royalty on the crown and bridge-work they are making.

The history of the Protective Association would hardly be complete without adding that the Crown Company, after the association had tied them up and cut off their revenue, brought suit against me for damage to their business for $60,000.00 and six months' imprisonment. That move didn't scare me in the least, and I immediately issued another circular announcing my decision to continue my part. Some time after this a representative of the Crown Company came on to Chicago and tried to buy me by bribery. I did not set any price on myself, but they offered me a million dollars if I would let them win two or three suits and then advise the profession to settle.

Some years later when the fight seemed to be over, a member of the Protective Association in the East said he believed the suit could be won yet, if I quit. I said that I had quit as I had no more funds and the profession did not seem interested. This party took it for granted that I would not fight any further and Sheffield and his party got into Court and took testimony again and got the Court to reverse its decision and sustain the Low bridge patent.

I then issued a circular to this effect, that if the dental profession wanted me to do anything for them they must come forward and pay $10.00 for their membership fee and by this method I more than doubled the membership. With these funds I went into Court again and proved that the Crown Company had hired the attorneys on both sides, and when this was shown the Court again reversed its decision, knocking out the Low bridge patent. It will interest you to know that a bill is now pending in Congress to have the Low bridge patent reinstated, but we will not discuss this tonight.

Having disposed of the International Tooth Crown Company, we now come to the consideration of more recent patents, in which you are all vitally interested; viz. the Taggart patents for casting gold fillings and the like. This invention has revolutionized the practice of dentistry more than any other thing in my lifetime, and I am happy, as president of the Dental Protective Association to be able to endorse what Dr. Taggart has done and recognize his inventions on their merits. After careful study and investigation of his different patent claims, I believe they will stand the test, and will be validated by the Federal court when the proper time comes; and having come to this conclusion it behooved me, on the part of the Dental Protective Association, to get Dr. Taggart into an agreement before his patents were validated, thus guarding our members from any possible abuse by the owners of these patents, should they leave Taggart's hands, and prevent the possibility of exorbitant royalties being exacted. With this end in view, after long and strenuous efforts, the present Board of Directors of the Dental Protective Association, consisting of Dr. C. N. Johnson, Dr. J. P. Buckley and myself, succeeded in effecting an agreement with Taggart and his attorneys which will absolutely protect the members of the association, both present and prospective. This agreement is a compromise measure and will certainly prevent a long line of litigation, and at the same time it is just and fair to both the present members of the Dental Protective Association and Dr. Taggart, and also to all members of the profession who desire to join the association.

Such an agreement as we succeeded in making with Dr. Taggart could not have been made with him on so favorable terms after he had his patents validated. Immediately after this agreement was obtained a circular was issued announcing the terms and the conditions upon which the profession could take advantage of it. Whether this agreement will accomplish what we anticipated will depend upon the individual members of the profession. After this circular was mailed many of the older members sent in their check for the required amount at once. Others hesitated because they did not seem to understand just what the Dental Protective Association was. In issuing this circular we overlooked the fact that fully four fifths of the practicing dentists of today know practically nothing of what the Dental Protective Association has done and how much they individually have been benefited by its existence. When we stop to consider that patent litigation has been practically at a standstill for the past ten or fifteen years, it is not strange that the younger men of the profession should be ignorant of the work of the association. For this reason, in the first part of this paper, I have given you a brief history of the Dental Protective Association, showing how we put the International Tooth Crown Company out of business and prevented much patent abuse. You, therefore, have a faint idea of what you are being saved today in royalties because of this association. There is not a man practicing dentistry today in this country who is not being saved hundreds of dollars each year which he would have had to pay had these greedy corporations been left to their own designs.

There is one very important factor which I wish to discuss in this connection, and it is this: Not more than one sixth of the dental profession came into the Dental Protective Association or contributed to the expense of this vast amount of litigation, yet the remaining five sixths received the protection and benefits without paying a dollar. The only contributions many of these outsiders have made or are making today is their criticism of the association, mainly adverse and unfair.

When this Taggart proposition came up, and I had examined his patents and the evidence which will be presented to the Federal court, I studied it over carefully and came to the conclusion that Taggart would ultimately establish the validity of his patents. I felt that here was an opportunity for doing double duty. First, if an agreement could be effected it would be possible for Dr. Taggart to get a just revenue without court fights and without working a hardship on any man; and, secondly, it would place the Dental Protective Association on a strong and permanent basis. I knew that these objects could be accomplished only by means of a compromise agreement, making the terms so reasonable and fair to all parties concerned that each member of the profession would willingly join the Dental Protective Association to get the benefits thereof.

There are supposed to be about 40,000 dentists using Dr. Taggart's inventions in the United States alone. If this number came into the association, it is easy to see that a large fund of money would thus be created with a very light tax on each one. The income of such a fund, if properly invested, would take care of every form of abuse that might arise in the future and threaten the profession, and thus the permanency and efficiency of the Dental Protective Association would be assured.

One feature of this agreement is that to get the benefit of it, a dentist must be a member of the Dental Protective Association, and because of this fact, I have been accused of coercing or trying to coerce members of the profession into the association. Any dentist who feels thus loses sight of the fact that were it not for the association no such agreement could have been made with Dr. Taggart, for it was not a voluntary act on his part, and it now seems only just that the members of the profession who have been reaping the benefits of the association without contributing to its support, should come forward and do their part in this great work. If they do not, and let me state plainly here that there is absolutely no compulsion about the matter, but those who do not choose to join with us must stand, so far as the Dental Protective Association is concerned, on their own responsibility; and if sued by Dr. Taggart and forced by law to pay what might seem to be an unjust amount, they have only themselves to blame. This paper is presented at this time that every member of the profession may have knowledge of the fact that through the Dental Protective Association's agreement with Dr. Taggart they may have the advantage of all of Dr. Taggart's inventions without paying unjust or exorbitant royalties, unless it can be construed that the payment of 88 cents a year in advance for seventeen years, the life of the patents, for this privilege is unjust and exorbitant.

This agreement provides first, that any member of the association in good standing can secure the present Taggart machine for the cash sum of seventy-five dollars ($75.00), including the permission to use the method, providing the amount is paid within one year from the date of the entry of any decree or judgment finding Taggart's patents valid or granting damages for infringment, or he can obtain permission to practice the Taggart method alone for the lifetime of the patents (17 years) with any machine he may now be using for the cash sum of fifteen ($15.00) dollars, providing the amount is paid before the entry of any decree or judgment finding Taggart's patents valid or granting damages for infringement.

The agreement further provides that any member of the profession who joins the association within the time above specified can also secure such permission on the same terms.

The fee for membership in the association is ten ($10.00) dollars. It may be seen that for twenty-five ($25.00) dollars any member of the profession can obtain membership in the association and the permission to use the Taggart method. We feel that this is a fair and just proposition for all concerned, and we earnestly hope that all of the members of the association, both present and prospective, will accept the terms of the agreement.

Those who know anything about Federal court proceedings will appreciate the fact, that it may be only one month or it may be four or five years before Taggart's case comes up in Court for final adjudication and the members of the profession must understand that there is nothing to prevent Dr. Taggart and his attorneys from bringing suits against dentists who are using the methods with infringing machines without first obtaining the right to do so, either directly from him or through the Dental Protective Association. On this point there seems to be a great deal of misunderstanding. The profession is in error in thinking they need not take action until Taggart has validated his patents. There is nothing to hinder his lawyers from bringing as many suits as are advantageous to their cause at any time.

I wish to emphasize distinctly here that any member of the profession who is sued by Taggart cannot thereafter take advantage of the agreement, for the Protective Association is barred from furnishing them any assistance in the way of defense and they will be obliged to deal with Taggart and his lawyers independent of the association. Some such suits have already been begun, one right here in Chicago, where the party sued had to go and settle with Taggart and his lawyers for a much larger sum of money than the sum specified in this agreement.

As this agreement was a compromise measure it would be much easier to comply with this than to take the chance of being sued, and it is hoped that the members of this society will set the example and comply with this agreement as a body.

There is another mistaken idea which seems to cling to many members of the profession, and that is, that process patents cannot or should not be valid. Many are asking why, since I fought and did away with certain process patents in the past, do I not take this process patent of Taggart's and treat it similarly. What is to hinder other process patents being thrust upon us, they ask? These questioners lose sight of the fact, that here are patent claims which in the opinion of good judges will stand the test in Court because they are legitimate and based on the well recognized principle that for a thing to be patentable, it must be new and useful. Let me ask, What is a process patent? I cannot think of hardly a patent that does not involve a process. What constitutes a valid patent then? There is no more well established principle relating to patent law than that the thing patented to be valid must be new and useful. The essential elements of utility and usefulness are the basis of our whole patent system and the statutory enactments thereunder. It is often difficult, and at times impossible, for the patent office to determine simply from an examination of the thing presented for a patent grant whether such thing is a new and useful improvement. As a matter of fact the patent office is unwilling to assume the responsibility of determining whether the elements of newness, usefulness and improvement in the thing presented actually exists. Therefore, many patents are granted which are neither new nor useful and must come under the head of worthless patents. It was largely such patents as these which, in the past annoyed the dental profession.

You may ask, Is Taggart's invention new and useful? Some men claim to have done these things before Taggart. Granting for sake of argument that they did, which I am certain in my own mind they did not, let me ask, did these men give the ideas to us so that we might make use of them? Is there any man present who really doubts but that for Dr. Taggart we would still be filling teeth in the old way? Is there anyone here who is willing to give up the method given us by Taggart in every detail, and practice as he did before? I do not believe there is a man here tonight who would willingly give up the use of Taggart's method and fill teeth as he did before it was known for one hundred times what Taggart has offered to accept by the terms of the Dental Protective Association's agreement.

In answer to those who seem to lack confidence in the ability of the officers of the Dental Protective Association to determine valuable from worthless patents, and fear that the latter might be recognized in the future, let me say this: If anyone presents a patent based on the principle of being new and useful, they will be given due consideration and an opportunity offered for treating the members of the Dental Protective Association fairly. This is just what we did with Taggart, and let me say to his credit, that he was willing to be fair. What more could we ask? The association in the future, as in the past, will endeavor to protect its members, but its members only, from abuse. If this can be done by compromise, all well and good; if not, the association will exhaust its funds in attempting to protect its members. This is one of the strongest arguments for the existence of such a fund as we hope to create, for no sane man or group of men would attempt to abuse the members of any organization if he or they knew that a large sum of money was ready to be expended if necessary to prevent such abuse.

Since announcing to the profession the terms of the agreement with Taggart, I have been accused of not doing my duty because I did not fight Taggart and try to invalidate his patents. Why should I have fought Taggart when he was willing to treat the members of the Dental Protective Association fairly? I have always posed as an honest man and no honest man would fight Taggart under the circumstances. Surely, I would not as long as he attempted no abuse of the members of the association. Some, who do not understand the situation and who seem more willing to criticise than to put their shoulder to the wheel and help, say that the Dental Protective Association was organized to fight all patents, good, bad and indifferent. Since I organized this association myself, I ought to know the objects of its organization, and I know of no better way of stating this to you than to quote from the second circular that was issued to the profession in June, 1889, over twenty-one years ago. In this circular I said:

"Its first object, as stated in the circular is to defend the profession against the unjust demands of patentees whose claims are worthless. Let it be distinctly understood that it is not the design of the Dental Protective Association to interfere with any man's legitimate business or valid patents, but to stop the enormous abuse of dental patents.

"Its second object is to bind the dental profession together for mutual protection, strength and helpfulness, with a bank account and without politics.

"An organization for defense must necessarily differ widely from one for social or political purposes. It must be ready for war at any moment. To insure this, the authority needs to be in the hands of a few. Such an organization is the Dental Protective Association. The power is invested in the directors: the responsibilities are borne by them, and all risks as well. They can sue or be sued, are accountable for the proper handling of the funds, and must take charge of the suit of any member of the association who is unjustly sued for infringement. Every member by paying a fee of ten ($10.00) dollars and assuming a liability of ten more, only (which latter will probably not be needed) can continue his practice undisturbed, knowing that if sued, he will be furnished with the best of legal talent and evidence, and be relieved of all costs and harrassment of suit. It will at once be seen that the largest expenditure of the association must be that of time, energy and thought on the part of the directors, since there are no salaried officers, and expenses are kept at the minimum."

The first and greatest adversary, though not the only one, with which we have had to deal, is the International Tooth Crown Company. Do you know how nearly you have been in its jaws? Look at a list of its patents. On bridge-work it has several, including the Low, the Richmond, and the Sheffield bridges. It has patents on permanent bridges and patents on removable bridges; a patent on preparing roots for crowns, which includes a patent on freezing the tooth, a patent on cutting off the tooth, a patent on killing the pulp, and on driving it out at the same time (if you can), a patent on filling the end of the root, and a patent on filling the root with material suitable for holding the metallic pin or screw which supports the crown or bridge.

It had even a patent on the cement for securing crowns. On crowns it has many patents, including the Beers or gold crown, the Bitner crown, the Richmond crowns and the Sheffield crowns; several of each of the last two named. It has patents on crowns with bands and without bands; patents on crowns secured with screws and without screws; a patent on crowns secured with gutta percha, a patent on crowns secured with cement and a patent on crowns secured with both gutta percha and cement. It has also a patent on crowns covering the end of roots. In fact, if the validity of these various patents owned by the International Tooth Crown Company should be established, it would seem as if all the other crowns now in use would be declared an infringement on that company's crown patents. Then this company has also a patent on use of trial plates, a patent on getting articulating models, and a patent on investing the piece for soldering."

I quote the above simply to show that the accusations against me at this time are absolutely incorrect. I have uttered these sentiments time and time again during the past twenty years, to wit: *that the Dental Protective Association was not organized to deprive a man of his rights,* and in this instance after examining the patents which Dr. Taggart now holds, I am more and more convinced that the Court will in due time validate them; and in all the discussions I have heard, I have had but two men say he was not entitled to at least the small sum of fifteen ($15.00) dollars as compensation.

In this paper I have abstained from discussing the question of ethics in relation to patents or the propriety or wisdom of dental inventors taking out patents, except to say that there is no reason why an inventor should not be compensated for his inventions, and the only way for him to get compensation is to patent his discoveries, and the proof of this assertion is well illustrated in the present case. In this connection, I wish to call attention to a very able article in the September number of the DENTAL REVIEW, by Dr. Edmund Noyes, wherein the subject is treated exhaustively and ably and which should be read by every dentist.

Ever since the organization of the Dental Protective Association, I have at various times been accused of all sorts of unwarrantable acts. I have been criticized alike by the companies which I was fighting, and by many of the members of the profession on whose behalf I was making the fight. Sometimes I have answered the criticisms and sometimes I have not, because I have felt confident at all times that my acts would eventually be judged by the results, and I was willing to stand or fall by this test. Then, again, I knew that much of the criticism was based on a misunderstanding. This I feel is especially true of the agreement in the Taggart case, and my present plea is that men will look carefully into the merits in question before passing judgment. I have never claimed to be beyond the possibility of mistakes, because to be that I would be something more than human: and yet in this Taggart agreement I have had ample time to think it over, and I do not believe that any mistake has been made. In any event, I am willing to await the verdict of time and experience, and I have little doubt of the ultimate endorsement by my profession of the position I have taken.

In order to give something like a comprehensive review of the past and present patent litigations, it has been necessary for me to omit the discussion of patents on celluloid or aluminum and many other unimportant patents, as this paper is already unusually long, I hope you have not been wearied to such an extent that you cannot enter into a thorough and earnest discussion of the questions involved. I thank you for your patience.

THE PROBLEM OF THE CONSTRUCTION OF GOOD DENTURES.*

BY DR. T. W. PRITCHETT WHITEHALL.

Owing to the great awakening of interest among the people of late, through the writings and lectures of Mr. Horace Fletcher, and other scientific writers on physiology, as to the importance of thorough mastication of food in order to make growth, maintain strength, health and activity of the human body, it follows as a corollary that good teeth, whether natural or artificial, are the means to those ends.

It is pertinent to inquire if the dental profession, as a whole, is prepared to construct artificial dentures for persons who from any cause become edentulous, capable of performing, in full measure, a masticating efficiency equal to the normal requirements for the health and well being of the individual. Briefly stated—are we making good?

In the making of good dentures, whether it be called by the old fashioned name, mechanical dentistry, or by the more modern name, prosthetic dentistry, or by the still more modern name, prosthodontia, or by the supra-modern euphonious, up-to-date name P-r-o-t-h-e-r-o-d-o-n-t-i-a, all the same, the chief aim should be—efficiency.

Too many dentures are made that look fair from the labial and buccal view, but when looked at from the posterior and lingual aspects, reveal areas of unoccupied space through which (hyperbolically speaking), cats and dogs might pass unscathed, except that a few scattered cusp points might cause the animals to signify their displeasure by howling and yelping—when closure is made upon the dentures. Mastication upon such surfaces? None—or so nearly none that its value is not worth consideration, except as the starting point of zero—for comparison.

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*Read before the Illinois State Dental Society May, 1911.

"To grind or not to grind, that is the question; whether 'tis just to the patient to permit him to endure the 'slings and arrows of the thousand unnecessary shocks' of unevenly balanced occluding surfaces 'or by taking arms against a sea of troubles,' by a few deft Bonwillian strokes with a small carborundum stone—'end them.'"

We will suppose the full denture has been constructed according to the most approved up-to-date procedures, briefly outlined, to-wit: If the mouth membranes be hypertrophied and thickened by wearing ill-fitting and badly occluding dentures, return to normal by the presure and anti-septic method recommended by Dr. C. P. Pruyn, provided, the old dentures can be used to carry oxyphosphate of zinc cement to the parts as you would take an impression with plaster of Paris upon wax or impression compound. Plates to be worn, for they will now fit, renewing the oxyphosphate a few times until the membranes are restored to normal thickness and health. The impressions can now be taken under improved conditions, and they and the casts modified to secure even bearing against the tissues; rigid built-up bite plates for convenience and accuracy of securing the bite are made; the face bow, or its equivalent is used to secure the casts to the articulator in the same relation as the bite plates were in the mouth; the protrusive bite is taken, and the adjustable parts of the articulator are arranged in accordance therewith so that the compensating curve may be approximately established and the line of occlusion be made to correspond to the normal range of masticating movements of the lower jaw. Teeth are selected, preferably of some of the newer molds, of suitable form, size, shade and character of the case in hand.

The occluding surfaces are so modified by grinding away the obstructive small rounded contact points in the occlusal "space" in such manner as will permit of comparatively broad areas of close bucco-lingual and long mesio-distal contact when closure is made upon them.

A German writer has said, "The natural bicuspids are most used in the mastication of meats and other fibrous foods, while the first molars are the most used in the mastication of cereals and the softer forms of food." If this be true that the occlusal surfaces of the teeth named are the storm centers of action, how very important it is that in artificial substitutes these surfaces be so mechanically formed as to make up largely in action for the difference between teeth held rigidly in their sockets of bone, and teeth supported by plates, resting upon sensitive, resilient and changing surfaces, and subject to displacement with a limited amount of masticating force.

The occluding surfaces of natural teeth are not the best from a purely mechanical standpoint for masticating efficiency, except in cases in which, by reason of accidental wear of the rounded surfaces in the "Occlusal space" they become more angular, sharper at the peripheral margins, of broader area of close contact through the central areas when closure is made upon them by the opposing teeth. This change of form of the occluding surfaces of bicuspids and molars may be noticed as characteristic of people who have red hair.

Not disputing that Nature's forms are very good in function when uninterrupted by abnormalities and are retained rigidly in their positions by her own wise provisions, yet, she cannot be copied too closely when it comes to the substitution of artificial for the natural organs.

Plates usually have strong adhesion to the membrances without teeth, but after teeth are attached to them and closure of the jaws is made upon the teeth, then the battle of opposing forces begins. Every point of bearing that is out of balance with some other point or points on the opposite side within the differential area—in lateral, direct or prostrusive movements of the lower jaw, is a disturbing factor to their efficiency and of much discomfort and annoyance to the wearer. A few nagging points of contact, that will occur even with the most painstaking care, will essentially spoil the efficiency of an otherwise well constructed denture. The natural teeth, by wear and accommodation, may overcome obstructions of this kind, but artificial teeth might be worn to the "brink of the crack of doom" and they would occlude no better.

These strictures apply only to such dentures as are made where no change of the form of the occluding surfaces is attempted by Bonwillizing, or grinding away points of interference, forming larger areas of close contact surfaces of such form as will have cutting or shearing, crushing and some possible grinding properties imparted to them.

The idea is preposterous that rounded surfaces, small in areas, few in number, hard and unwearable, nonfrictional in action, can be expected to grind foods that are fibrous, hard and tough, or in fact, foods of any kind—not even plain water.

The term "grind" implies the moving of surfaces (roughened usually) upon or against each other, and the effect is abrasive and tearing in the main. The term "Crush" carries with it the idea of surface area also, and the effect is to overcome by force of power or weight. "Cutting" signifies the application of force against an angle or an edge, and is the most penetrating surface, except a point, of all the surface forms that can be utilized in the construction of dentures.

The combined action of this trinity of forces upon surfaces so formed as will permit of simultaneous effects upon food substances —is the very acme of mechanical adaptation.

An ounce of practical demonstration is sometimes worth more than pounds of undemonstrated theory.

In testing the efficiency of Bonwillized dentures in comparison with those that are not—including also good natural unworn dentures—by observing the appearance of chewed morsels of meat (more particularly beefsteak), I have been happily surprised at the results of the investigation. In the first mentioned the muscle fibers have the appearance of being split apart, separated, and cut short, indicating conclusively the penetrating force of the lower modified buccal cusps when closure is made in the upper grooves. This effect is certainly obtained with the minimum of muscular force.

On the other hand the effect shown by the unmodified occlusal surfaces had more of a punctured, bruised and mangled appearance —more prominently shown in the artificial than the natural, evidencing the fact that round contact surfaces lack enormously in masticating energy as compared with surfaces that have cutting, crushing and grinding possibilities combined, as exemplified in the Bonwill idea of occlusion.

Natural teeth grow into relationship with each other, while artificial teeth are built into relationship with each other, and the builder should be held accountable for the mechanical efficiency and worth of the thing built.

The denture is finished and placed in the patient's mouth. Such discrepancies as can be noted at the time should be attended to, such as easing up the plate margins, if there be too much impingment upon the tissues, or a few visible contact points of cusps striking too soon may be modified, etc., enough of correction of errors that will enable the patient to get something of a start—then dismiss him with an invitation to return for further correction. If happily our technique has been sufficiently accurate to enable the patient to make some progress in overcoming the difficulties and novelties of the situation—the plates having become fairly seated upon the membranes, and the muscles through a little use having resumed something of their normal habits—the conditions are now favorable for securing the most positive accuracy of the bite that it is possible to obtain.

Getting the bite is the "bete-noir" of mechanical dentistry. Dr. G. V. Black, in reply to the question by Dr. C. B. Rohland, of precious memory, "Doctor, when do you know you have obtained an accurate bite?" said, "I find that out about a year after the denture is made and worn." He further illumined this "Jack Bunsby" like answer (with a lesson in it) by describing a method of training he put the patient through previous to taking the working bite, by constructing plates of base plate gutta-percha, arranging teeth thereto, and having the patient wear these as best he could for an indefinite time, hoping by this preliminary practice to enable the patient to acquire more of the normal habit of closure, and to finally obtain the true bite. That was twenty years ago. The improved method that will be described by Prof. Prothero seems more practical and time saving than the one described by Dr. Black.

On the return of the patient, if we think sufficient time has elapsed to gain the advantages indicated, we take a new bite in this manner. From a thin sheet of beeswax cut two strips approximately an inch wide, and two inches long, soften and mold these over the occluding surfaces of the lower denture from the cuspid back, leaving the incisors free for observation. With the upper denture in place quickly soften the surface of the wax on the lower, insert and make closure with the least force that will make indentations of sufficient depth to keep the dentures in correct relation when again attached to the articulator. We will thus have a bite taken under the most favorable conditions.

Now let us see if we can discover errors. If none are found—exult. If any are found, and usually there are many, remove them, if not so grave as to require the making over of one or both of the dentures.

If the general alignment and the compensating curve is fairly good, the most likely error will be found in some of the contact surfaces being out of balance in spite of particular care in construction. Such faults are easily overcome. The remedy: Stain with some medium that will show the point of contact that should be cut away. Stain and cut until we have near surfaces that will grind. Stain and cut until we have near surfaces that will crush. Stain and cut until we have surfaces that will cut or shear. Stain and cut until we have removed all the little nagging, creepy and disturbing interferences, from cuspid to second molar that are so annoying for a patient to endure, and we will have made a denture fit for a King to wear.

The attitude of your Board of Dental Examiners on the subject of artificial dentures and their construction as relating to their experience and duties as examiners may be of some interest to the Society. Prior to 1905 the numbers examined by the Board were few, and these confined entirely to practitioners of some years service, so that no particular data of merit or demerit can be drawn from those examinations, except to say, they did not show any evidence of an awakening to the consciousness that a new era was dawning in the construction of artificial dentures—mediocrity and below being the rule, with but a few exceptions.

Our law of 1905 requiring all who begin practice in the state from that date to take our examination brought a great influx of applicants before the Board. More than seventy-five per cent of these probably, were recent graduates from the Dental Schools, fresh and long in theory, and supposedly short in experience and practice—apparently requiring a different mode of examination and grading to restore the balance between knowledge acquired by theory and the application of it by practice.

In passing, I will say that it has not been apparent to the

Board that those of some years' experience in practice have shown any marked superiority in the dominant phases of construction, under the old regime of teaching—over the recent graduate under similar teaching.

We made some Rules and Requirements to govern the Prosthetic Clinics, and our troubles began. Quite early a number of questions protruded themselves upon us, among them these, "When is a denture a denture?" In other words, "Have we a standard by which to determine or answer that question?" "Who, where, and what is the authority?" "What relation or status does Prosthetic Dentistry hold to dentistry as a whole, and what degree of proficiency as compared with all the other branches should be exhibited by the work of hand and head to entitle the applicant to a certificate of proficiency?" "How execrably bad must a denture be in all the salient features that make for utility and comfort, which judged by all the canons of experience could perform no valuable function whatever, to demand and justify a Board in refusing to pass an applicant for this defect alone?"

These are some of the questions and matters that have given us worry and tribulation. In truth we have not rejected a single applicant for incompetency in practical prosthetic dentistry who successfully passed the other branches, out of 700 or more whom we have legally commissioned to practice dentistry in Illinois, during the last five years. We certainly have had a percentage of as bad examples as ever needed to be labeled dentures to identify them as such.

Upon this confession you may think or say, the Board should be damned for inconsistency. But wait, before saying it, please answer the questions propounded, and if you would still condemn, and say it, then in the name of reason what would you do with that host of incompetents who are flooding the country with bad dentures in a legal way?

That is our story, here is another. Beginning with the June examination of 1905, with a class of some 118, improvement was discernible. Some of the improved articulators were being used. A few examples were in evidence of improved teaching upon the basic points of construction, and a few instances of very fine technique were displayed. About 10 per cent apparently showed some acquaintance with the Bonwill treatment of occluding surfaces, the great majority, however, showing old time methods of conservatism.

Annually the examinations are showing a steady improvement in some of the cardinal phases of occluding and balancing contacts, until in 1909 with a class of 120, a tabulation of one-half section of the class gave a percentage of seventy-five per cent, who made grindings upon the occluding surfaces of the bicuspid and molar teeth.

While this apparent indication of improvement is gratifying to the Board, there was that about it whch creates a suspicion that much of it was not acquired by a systematic and well grounded course of teaching, but was purloined, so to speak, upon the part of many who kept close observation upon those who were well grounded, and who gave them friendly coaching assistance. Another proof that up-to-date teaching had not been given to many of these applicants was in the worthless character of the paraphernalia with which they were equipped to do their work.

The June class of 1910 was the banner class. Out of 106, 80 per cent came provided with the latest and best articulators, capable of registering the condyle paths, with other up-to-date equipment, and in the selection of teeth 60 per cent were of the new molds called "Anatomic" some of which resemble Nature's work when in her best moods. With only their college experience, which is necessarily limited, a large number of these men instructed in the use of the newer equipment and the newer forms of teeth, were able to demonstrate a technique in denture construction that was beautiful and inspiring to behold.

The Board, noting these discrepancies, and also noting the many beautiful examples wrought by up-to-date teaching and the employment of up-to-date equipment, reached the conclusion that the time had arrived when it should exercise all its powers of persuasion and co-operate with any and all sources promising aid, hoping thereby to bring about an uplift of this much neglected branch of dental science.

To accomplish this object it may become necessary to use some compulsory means, with the view only of reaching the goal of our desires more speedily.

The following Notice, or "Rules of Procedure" governing examinations in Practical Prosthesis have been formulated by the Board and copies sent to all the Dental schools and Colleges of the country:

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

Supplemental Requirements and Instructions Governing the Clinical Prosthetic Procedures Relating to Rule VI.

In view of recent closer study and improvement in the management and arrangement of the occluding surfaces of artificial teeth, whereby the greatest masticating efficiency can be attained, the Board deems it a duty to require of those who are to serve the people of the State, *a good working knowledge of the most approved methods of construction of artificial dentures.*

To these ends and to approximate as nearly as possible the conditions that apply to practical prosthesis, the applicant is required to furnish plaster casts prepared by himself, for a full denture (both upper and lower) made from impressions taken from the same mouth. *These to be mounted upon an anatomical articulator capable of registering the condyle paths in each individual case,* the bite plates to be in position, and the work continued to the point of readiness for trial in the mouth.

The points or counts considered in grading are as follows:

First—Treatment of the impressions and casts to secure retention.

Second—Selection and general arrangement of the teeth. Occlusion.

Third—Contour for restoration of the features.

Special notice will be taken in the grading, *as to the occluding surfaces of bicuspids and molars, whether they are of such form as will grasp, cut and crush food substances effectively; the balancing contacts when lateral and protrusive movements of the mandible are made;* and the proportionate size of the teeth selected for the case in hand.

It is obvious that impressions and casts made from dummies or otherwise than from the natural mouth, will not fulfill the grade requirements. The Board will not give encouragement to half-hearted and perfunctory efforts on the supposition that nearly anything is good enough to pass the applicant.

Good equipment is necessary to attain correct results, hence an *up-to-date articulator is an indispensable adjunct* in the construction of *up-to-date* artificial dentures.

Crowns.—The applicant will also be required to construct a banded porcelain-faced crown upon the root of an anterior tooth, in the presence of the Board.

The grading points are as follows:

First—Preparation of root.

Second—Adaptation of band to root.

Third—Occlusion. Form.

Fourth—Finish.

In the grading, especial notice will be taken of the relation of the band to the gingivae, and to the contour of the lingual surface.

In order to secure something of uniform procedure, it is suggested that the applicant take an impression of his own natural teeth, make plaster casts, cut off a given tooth, adapt and insert the root of an extracted tooth, and complete the case in accordance with the points designated in the grading.

It is further suggested that the applicant supply himself with a goodly number of extracted teeth from which to select a suitable one for his case.

The applicant must furnish all instruments and materials for all practical work.

THE PROBLEM OF THE CONSTRUCTION OF GOOD DENTURES.*

BY DR. J. H. PROTHERO, CHICAGO.

Those members of the state society who have been in regular attendance for a number of years past will recall that at each session with almost unfailing regularity the preceding essayist Dr. Pritchett has been a more or less active and always an interested as well as an interesting worker.

Many will also recall that in the interval between clinics and papers and business meetings he would frequently button hole a friend, take him to some secluded spot in the hotel lobby or meeting place and engage in a heart to heart talk.

Frequently this talk would be prefaced by the doctor producing several small tin boxes each containing portions of meat that had been ground, reduced, Fletcherized, crushing illustrations he might have said, of what his patients were able to accomplish with dentures made to cut and shear and grind.

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*Read Before the Illinois State Dental Society May, 1911.

Although some looked on this fad as a joke, others regarded it seriously and considered thoughtfully the lesson presented.

There may have been times when the doctor must have felt that his efforts were unappreciated and that no progress was being made. Unconsciously and without realizing it he has been laying the foundation deep and wide for better methods in denture construction by showing the results of scientific procedures.

Dr. Pritchett has been doing splendid missionary work these many years, the results of which are beginning to be felt noticeably in the requirements demanded of candidates for state board licenses. If any doubt exists in the minds of anyone on this point let him visit the clinical prosthetic section at the next meeting of the board and the doubt will be dispelled.

In Henry VanDyke's little story "The Other Wise Man," Artaban the Median invites his eight other friends, high priests of the order of Zoroaster of fire worshipers to accompany him on a journey in search of the Prince worthy to be served by all men. One in reply to his invitation says, "My son it may be that the light of truth is in this sign that has appeared in the sky and then it will surely lead to the Prince and the Mighty Brightness. Or it may be that it is only a shadow of the light as Tigranes has said and then he who follows it will have only a long pilgrimage and an empty search, but it is better to follow even the shadow of the best than to remain content with the worst and those who would see wonderful things must often be ready to travel alone."

The high priests in Prosthetic dentistry who have been looking for wonderful things have been traveling alone for many years, cheered, however, from time to time, by a shadow of the light. Evans, Bonwill, Walker, Schwartz, Christensen, Gysi and in our own state Pritchett, each in his own way either by inventive genius, ability to devise methods, or put into execution ideas of others, deserve the heartfelt gratitude of the profession for their efforts.

I take this opportunity to publicly acknowledge my gratitude to Dr. Pritchett for having encouraged me more than twenty years ago to strive for higher ideals in the prosthetic field and I cherish the hope that for many years to come our annual meetings may be graced by his presence and the seekers after knowledge may listen to such enthusiastic words of truth as he has so ably presented today.

The story of good denture construction is a long one when all the details are told, too long for one evening's entertainment or for two men to outline. Your essayist will therefore call attention to certain important steps that in his opinion should be emphasized. in other words hit a few of the high places, leaving the general routine of details to be obtained from journal articles that have appeared from time to time in the last few years.

It is a deplorable fact that very few dentures are constructed so as to grind and reduce food substances with anything like the same thoroughness that is possible with the normal human masticatory apparatus. The average denture of today is capable of occasionally puncturing morsels of food, but is practically useless as far as grinding is concerned. This is due to the fact that only occlusal conditions are considered and worked out, usually very imperfectly at that, for few attempt to modify the occlusal forms of artificial teeth and fewer still to modify the cusp forms so as to permit the anatomical movements to be performed.

The force required to crush food between teeth with well developed occlusal surfaces when the hinge motion is made use of is much greater than if the lateral movement is employed.

A comparison of the results of grinding versus crushing force is found in Dr. Head's article in the Dental Cosmos, December, 1906. Here he makes use of the findings of Dr. Black's phagodynamometer as furnishing a fair test of the force required to crush food by direct thrust and compares these results with experiments conducted with a human masticatory apparatus in which the food was subjected to the grinding motion.

The following is the table referred to:

Meats.	Head.	Black.
Corned beef	18-22	30-35
Tongue	1-2	3-5
Tenderloin of beef, very tender	8-9	35-40
Round of beefsteak, tough	38-42	60-80
Roast beef	20-35	35-50
Boiled ham	10-14	40-60
Pork chop	25-30	20-25
Roast veal	16	35-40
Average	17-20	32¼-41⅞

Vegetables.		
Raw cabbage	16	40-60
Head lettuce	8	25-30
Radish, whole brake at	20-25	20-25
Radish, pieces pulverized at	10-15	35-40
Average	12½-16	30-38¾

Is any further argument necessary to convince the prosthetist that the greatest usefulness with the least expenditure of force is developed in teeth occluded anatomically. If so as an additional argument let it be borne in mind that anatomically arranged teeth balance. In other words there is no idle side, for while food is being reduced and ground on one side the dentures on the opposite side are supporting each other in smooth gliding contact. System in that, isn't there. Might as well expect an eight-wheel ordinary locomotive to run on a mono-rail and maintain its equilibrium as that unbalanced dentures will remain seated under active lateral masticatory effort.

A contributory as well as a frequent primal cause of poor adaptation lies with the impression. Unless the impression is manipulated skillfully and removed from the model immediately on the setting of the plaster a warped as well as an expanded model results. The change is slight, it is true, and a careless prosthetist might not discover any fault of adaptation in a denture produced from such model because the careless prosthetist never has a case of excellent adaptation.

I say this without fear of contradiction for adaptation does not happen, it is produced and if one gets fair adaptation in favorable cases without effort better could be secured if striven for. Experience has led me to discard plaster of Paris for impression work whenever possible.

Three classes of cases present however, where this material is positively indicated: First, where any of the natural teeth are present. Second, where there are under cut surfaces opposed to each other. Third, where the ridge is flabby and will be readily distorted or bent out of shape. In all other cases a modelling compound that becomes plastic at very low temperature and hardens quickly can be used to best adavantage. Two such compounds are on the market to my knowledge. Stent's Compound made by Ash & Sons, and Perfection Compound made in Detroit. But little expansive or contractile change is noticeable in either of these varieties and what little may occur is eliminated by subsequent procedures not possible to employ with plaster.

Method of manipulation for upper impressions is as follows: Select a tray of appropriate size, but long enough to cover all of the hard palate if possible. Place compound and introduce in mouth pressing well up to position. Conform to labial and buccal surfaces of border by external pressure. In most cases pass the middle fingers of both hands back in central palatine vault and lift the compound in this location up against the soft palate, holding the material in position until fairly well hardened (the tray being held with the index fingers). Remove and chill. The impression will come away easily, as the adaptation is not yet developed. Trim off excessive surplus, round away the angles resulting from the cutting and remove all chip debris.

Now invert over a small gas or alcohol flame and soften the impressed surfaces to the depth of 1 to 1½ mm. and quickly return to the mouth. The chair should be tipped back so that the operator can stand directly behind the patient and when the impression is again seated a firm steady pressure of from 15 to 30 lbs. is maintained upon the tray for three or four minutes to bring about a readjustment of the softened film of compound. Under the pressure the compound moves from the hard to the softer areas, in fact it is crowded onto and compresses them.

On removal the impression is again chilled and reheated if necessary and the process repeated. Patients frequently complain bitterly of the discomfort experienced in removal of the impression which in some few cases observed, owing to the almost complete exclusion of air from between the contact surfaces indicated that nearly a perfect vacuum had been produced. Lower impressions are treated in a similar manner, but on account of the decreased area involved, less effort will be required for dislodgment than in upper cases.

Upper impressions should be relieved in the central palatine portion to a slight extent, say ½ mm. for even with the compression of soft tissues carried out in the impression, under use the denture is inclined in time to settle and rock.

In lower cases the deepest part of the impression or that portion which reproduces the crest of the ridge is sometimes slightly scraped from about the region of the second molar to the corresponding tooth on the opposite side. By so treating these cases the crest of the border is not impinged on when the lower denture is under load and in addition this treatment permits the peripheral margins of the denture to settle firmly into and against the soft tissues thereby excluding the air. In many cases a partial vacuum is developed which materially adds to the stability.

A few words on models will be applicable at this time. All plasters, good, bad and indifferent, expand in setting, some more, others less, all variable, depending on conditions and how manipulated. Moderately coarse plaster, medium setting as to time, good hardness when set is preferable to the finely ground quick setting varieties for model work because of less expansion.

A moderately thick mix should be made, the mass stirred slightly and introduced into the impression as quickly as possible. As soon as hard enough to handle, remove the tray and impression to prevent warpage.

Trim the labial and buccal surfaces somewhat inside of peripheral outline with a discoid instrument to a very slight depth to compensate for general expansion. This trimming raises an imperceptible bead on these surfaces and if properly located will not be obliterated by subsequent peripheral trimming frequently necessary to relieve irritation. A plane should be scraped across the distal part of the model usually about one-eighth inch wide and meeting the buccal beads at the tuberosities. This area should be tapered from nothing anterially to ½ mm. in depth at the distal margin and forms at this point the line or distal termination for the denture.

The beading on the sides of the model compensates for general expansion of the plaster, the line across the distal insures the base plate being imbedded in the tissues and guards against the ingress of air in this most vulnerable area.

The construction of base plates on which to build rims of wax for determining facial contour, length of teeth and for bite purposes, locating the condyle ends, taking the bite, use of the face bow, and mounting the models on the frame have been well described in previously published articles and it is not necessary to take up your time by such repetition. Clinics will be given to make the various steps clear when at the same time the registering of the condyle path will be explained.

The next important step in logical order will be the preliminary grinding of the teeth selected for a given case. It will be found a most convenient and time-saving method to modify the occlusal surfaces of all the bicuspids and molars even in the best forms of teeth now supplied us by the manufacturers if the greatest efficiency is desired.

A moderately fine grit carborundum stone ⅜ of an inch face, 3 inches in diameter is a convenient size to use. An emery truing device should be applied to each angle and two faces developed which meet in the center of an angle of about 120 degrees.

The central groove of each tooth is applied to this angle, while the two surfaces cutting bucally and lingually knock off the high points and develop somewhat flattened planes where only marble like surfaces existed. Teeth properly treated in this manner will still retain most of their characteristic surface markings and when occluded will fit together and work like mill stones.

In full cases the upper teeth are arranged first, the wax rim indicating their correct position. The second bicuspid on one side is the first in the lower arch to be placed, because by beginning with a tooth the varying occlusal planes of which are received by corresponding opposing planes the broadest contact areas will be utilized. The placing of this tooth in correct occlusal position, however, does not prove its correctness under action and it should be tested by subjecting it to lateral frame movements. Frequently the tooth iself or one or both opposite may require slight rotation to develop free clearance, but such changes are easily and quickly made, and if the teeth are firmly fixed in hard wax, will not often require readjustment.

The molars and first bicuspid are then set, each being tested as was the preceding one, then the corresponding opposite teeth are similarly placed and proven.

The cuspids, laterals and centrals are next adjusted in the order mentioned and if too wide or narrow, the discrepancy is overcome by substitution or reduced by grinding.

Finally the balancing point is worked out usually by tipping the two last molars, the upper backward and the lower forward until their occlusal planes are parallel with the condyle path. This can readily be determined by lateral frame movements and when correct the case is ready for waxing and trial in the mouth.

A hard variety of base plate wax should be used in constructing the rims and for waxing the teeth in position in order that the teeth will not move under stress in the mouth.

The patient should be instructed to exercise the mandible freely in lateral and protrusive movements, the operator at the same time holding the lips and cheeks away and observing the relationship of the teeth in the various positions. Frequently a slip of carbon paper placed between the occlusal surfaces will disclose high points not otherwise noticeable and these can be corrected with a small engine stone.

The principal point to observe, however, is whether the balancing points of contact have been developed. The high point can be corrected in the finished case, but not so with the balancing points. These must be secured by the paralleling of the occlusal planes of the last molars with the condyle path as before stated. When these several points are worked out correctly the cases are ready for flasking.

A case in which a perfect impression has been secured, a model obtained from that and corrected as perfectly as possible, the anatomical condition worked out accurately and the flasking properly accomplished may be ruined or the adaptation seriously impaired in the packing and vulcanizing.

The cause briefly stated is due to the instability of plaster. Pulverized dental plaster has the formula $CaSO4\ \frac{1}{2}\ H2O$. The calsined powder when examined under the microscope is seen to consist not wholly of amorphous granules, but with broken parallel sided crystals of widely varying sizes interspersed. When mixed with water the half hydrate begins immediately to take up water and the di-hydrate is formed, formula $CaSO4\ 2(H2O)$, the process going on for thirty-six hours or longer. If some freshly mixed plaster is placed on a slide and a cover glasspressed over it with a sliding motion so as to thin out the mass and render it transparent, when examined under the microscope tufts of needle-shaped crystals will be seen to pile up on each other and as the setting process goes on other crystals will gradually be attracted to and form upon the mass already grouped. These crystals are long delicate and needle-shaped and are grouped without order, lying very much like a bunch of disorderly jack straws with many open irregular spaces between.

These spaces may or may not become partially filled by the more slowly setting finer particles which crystallize in shorter needles later on.

In any event a plaster model which appears hard and resistant is composed of innumerable delicate crystals so grouped as to leave an intricate network of open spaces permeating the whole mass. Crystals of the character described will withstand stress up to a certain point, but will be instantly shattered when the modulus of resistance is reached.

If our eyes possessed microscopic power or the crystals of plaster were of macroscopic size, we could see a most terrific convulsion occurring during the closing of an overpacked flask. Crystals shattering and flying in all directions, others bearing their load up to the modulus limit and merely breaking and with others again maintaining their integrity and form depending on the force exerted upon them. Each broken crystal on the face of a model paves the way for a misfit denture.

Assuming the modulus of resistance to be 5, the ratio of force ordinarily exerted in closing a flask ranges from 2 below to 35 in excess of the modulus. Is it any wonder that misfits occur?

How can this danger be obviated?

Use dry heat in warming the waxed case before separating. When open, remove all wax from the matrix that can possibly be taken away with instruments. A fine stream of boiling water directed into the matrix will almost instantly remove the residue. No water need be applied to the model since, if proper care has been taken it will be free from wax.

The matrix is heated slowly over a flame first to drive off moisture and secondly to aid in the packing of the rubber.

The old method of gauging the amount of wax in a water glass and using a like bulk of rubber in the packing is an easy and rapid and accurate plan to follow.

When packed, a piece of muslin from the rubber, freed from its starch by washing and wrung dry as possible is spread over the packed case. The flask is then closed as close as possible with the fingers and the bolts inserted, tightening the nuts only slightly.

Dry heat is then applied, the flask being turned at frequent intervals to present the various surfaces to the flame. When well heated the wrench is used to tighten, applying not to exceed 5 pounds on the end of the wrench handle.

If necessary, reheat to obviate undue stress on the model. When closed, the bolts are removed and flask separated. Moisten the muslin with water applied with a pellet of cotton, when it will peel away from the rubber without difficulty.

Examine the packed matrix with a blunt round-pointed instrument pressing here and there to see that the mass is solid. A slight excess should show at the margins, although this is not imperative.

If deficient, add enough to make up the required amount and close the flask.

Place in a vulcanizer in the bottom of which is a block of wood, iron or preferably zinc about ¾ of an inch thick and 2½ inches in diameter. This leaves a space between the walls of the vulcanizer and the block amply sufficient for the water which should never cover the block. A cubic inch of water will make a cubic foot of steam, so don't be afraid of burning your case unless the vulcanizer leaks. As a matter of fact a teaspoonful of water is sufficient for a vulcanizer full of flasks.

It will be found that if the block on which the flask rests is of zinc that the hydrogen-sulphide which forms during vulcanization will attack it instead of the flasks or vulcanizer walls, they remaining clean while the zinc is gradually destroyed.

I have been taken to task for recommending this method, the claim being made that the presence of the zinc will cause porosity in the vulcanite.

We have since made accurate records of over 10,000 cases in our school laboratories and in that number but three cases came out porous. These cases were very thick, which fact is self-explanatory.

The best quality, greatest density and most elastic properties are developed in rubber with less risk of porosity occurring if vulcanization is carried on at 290 degrees or lower for a time sufficient to harden, rather than at a higher temperature for a shorter period.

This method of vulcanization insures a dry model in which the plaster crystals are far more resistant to stress than when damp or saturated, during the closing of the flask and further insures the maintenance of the model in a comparatively dry condition in the early stages of vulcanization, or during the time when some pressure is exerted on the face of the model by the slight excess of rubber before hardening has occurred.

The finishing of a case is accomplished along the prevalent lines. The palatine and border surfaces however should be finished with pumice stone and a stiff brush wheel until as smooth as any other surface of the denture to prevent the accumulation of mucous plaques and debris. No fear need be entertained of interfering with the adaptation if ordinary care is exercised. The regrinding has been thoroughly explained by Dr. Pritchett and some further details will be enlarged upon in showing the slides relating to this subject. It is a regrettable fact that in some schools outside of Chicago the teaching of anatomical occlusion is sadly neglected. In some cases, in fact, the teachers say it is a delusion and a snare. No man with brains who ever tried the system can make such a statement. If true then the Almighty blundered onto a happy system without realizing it. What is that little Arab Maxim: "He that knows not and knows not that he knows not is a fool."

Let me enjoin the members of our society with all the ardor I can command and with a confidence and certainty based on practical experience, to put into practice the system here outlined. The results I am sure will be an uplift in the field of prosthesis that will redound to the credit of the profession and the benefit of humanity.

DENTAL LEGISLATION.*

BY DR. GEORGE C. MARLOW, LANCASTER, WIS.

In presenting this paper today, I feel that I am bringing to your attention matters which are of vast importance to the profession, a subject which I cannot hope to cover completely in a short time, but I hope that my remarks will point out some of the more essential needs and that they may be the initiative for some much needed reforms.

Our first dental law was made effective in 1885, since which time it has been amended and generally revised. The first amendments being in 1902 and established certain educational standards, but the general revision, or new law, was brought about in 1909 and with the exception of a slight revision, of which I will speak shortly, it is the Wisconsin Dental law to date, and so far as it goes is one of the best dental laws in existence. Its only deficiency, in my opinion, is the fact that it fails to meet certain needs which the law should clearly specify.

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*Read before the Wisconsin State Dental Society July, 1911.

I wish to deal briefly with an amendment to our present law which has but recently passed the Legislature and was signed by the Governor on May 26th last. This amendment gives to the State Board of Examiners the unequivocal right to refuse to accept as satisfactory proof of the required preliminary education, suspicious credentials, purporting to be high school diploma equivalents and which it has been proven are often times obtained by fraud.

Last Fall eighteen young men were refused admission to our Wisconsin schools by reason of their lack of preliminary education, but some of whom at least went to other colleges and without any great apparent inconvenience were readily accepted as regular dental students in colleges regularly incorporated and commonly regarded as reputable; the unconditional admission being accomplished by the aid of an imported—from another state—assistant superintendent of public instruction who was glad to furnish credentials tending to show that the applicant had been duly examined and found to have the equivalent of a high school education; all for a fee based on a sliding scale of from $5.00 to $25.00, dependent upon the applicant's financial ability, and yet it was found upon investigation that only a makeshift examination was given and sometimes no examination at all.

Were it not for the amendment just passed these young men would be perfectly free two years from now, when they graduate, to come back to Wisconsin and demand an examination by the Wisconsin board, just as has been done for a number of years past and thereby working a double injustice; first, in forcing the admission of a class that our law was intended to exclude and also working a great hardship upon our own Wisconsin colleges by depriving them of material, which, if it were eligible for examination under our laws, should certainly be eligible to attend our schools. In addition to all this is the moral effect upon the young man.

As the law as amended reads, an applicant must file with the secretary of the board, credentials proving to the satisfaction of the board that he has an education equivaleInt to that demanded for graduation from a high school having a four-year course beyond the elementary grades.

This gives the board the discretionary power to demand original credentials which can be verified, either by high school office records, or if the credential is gained by examination, the question and answer papers must be preserved and presented.

The inadequacy of the law as it stands today is due to the fact that it fails to require county as well as state registration, it fails to prevent an association, or company of dentists, whether incorporated or not, engaging in practice under the name of the company or association or other title and not keep in a conspicuous place the name of each and every person employed in such comany or association; it also fails to provide forfeiture of license, except by failing to pay registration fee, of persons seeking to gain practice by false or fraudulent representation, or practicing under an assumed name, or for any dishonorable conduct.

In my capacity as secretary of the board for the year ending June last, my attention has been particularly called to the advertising parlors by the receipt of letters from dentists throughout the state, some of which read as follows: "I wish to call your attention to the fact that an advertising parlor is in operation in our city. Come up and stop them at once." Or, "Dr. Blank is violating the law by advertising cheap dental work. As secretary of the board, it is your duty to see that he is prosecuted." Or, "Why don't you look after the Blank Medicine Company. One of them has been in our town for two weeks and some of my patients have gone to them for work, because they could get it cheaper than I could do it. Please do your duty."

I wish to explain the position of the board in regard to these matters. As a matter of fact, under our present law, a man holding a license and who pays his annual registration fees, has a perfect right to advertise if he so desires, regardless of anything the board can do.

I believe the enactment of additional sections to our law along the lines mentioned above and conforming with those recommended by the committee on codification of dental laws, and which were submitted and approved at the National meeting at Denver last July, would greatly relieve us of the unethical throughout the state. Let me state, however, that it is a hard matter to obtain suitable legislation and particularly without the hearty and earnest co-operation of all the societies and individual ethical dentists.

First among the difficulties to be met is the fact that the members of the Legislature and the public will accuse us of being too radical in our wants; the public at large seem to hold that it is a man's endowed right to advertise if he wants to, and in most any way he chooses. Again, the advertising dentists are stronger than we usually give them credit for being. By reason of their patronage in advertising in the newspapers, they claim and obtain the newspapers' support in fighting bitterly any such proposed legislation. The legislators are susceptible to any unfavorable newspaper criticism, and it is with great difficulty that such measures can be put into law.

To make the state board's position a little clearer, at the present time if a violator is found and an arrest desired it becomes necessary first of all, before the district attorney will issue a warrant, to obtain evidence of dental work actually performed by the violator; even then there are district attorneys who have refused to issue warrants for various reasons. The reluctance of people to appear in court is also a severe handicap toward dealing out justice to these violators and usually requires a paid witness and a paid attorney to prosecute the case because even after the district attorney has issued the warrant and it seems clearly up to him to prosecute all violators of the law, yet there are many district attorneys who have neglected to prosecute. This all means a heavy expense to the board and as the board has been handicapped for want of funds for a long time, it has meant that they need to go slow and careful and not get into any more heavy and expensive litigation.

I wish to state right here that any individual, dentist or otherwise, has just exactly the same right to complain to a district attorney and swear out a warrant as a member of the board has, and a little co-operation on the part of the practitioners at large would make prosecutions of violators by the board much more simple.

Very frequently judges are inclined to leniency for first offenses and after following up a violator for weeks to get suitable evidence and witnesses it is very discouraging to have the case dismissed upon payment of costs by the defendant upon his promise to be good in the future.

I would recommend this fact for your consideration as a remedy for these wrongs—suitable stringent laws, yet not radical enough to be unconstitutional, to be passed and enforced by the co-operation of all individual ethical dentists and all the local societies acting in conjunction with the state society and the state board.

In conclusion, I beg to submit the following summary of amendments that are needed to make our present dental law more efficient:

A section providing for county registration.

A section requiring the public displayment of all persons practicing under an association or corporation or title name.

A section giving the state board the power to revoke licenses under conditions above stipulated.

A section that, if constitutional, would make the advertising to do dental work by an unlicensed person prima facie evidence of violation.

A section that would prohibit practicing under an assumed name or of using another person's name.

A section more clearly defining the right of assistants.

ORTHODONTIA.*

BY DR. RAYMOND J. WENKER, OF MILWAUKEE.

I fully appreciate your invitation to read a paper at this meeting, and I am especially gratified to be asked to discuss the subject of Orthodontia above all others, as I believe it is the most interesting subject in our profession.

Orthodontia covers a very large field. Indeed, there are very few subjects, either dental or medical, in the entire field of dentistry which are not fundamental requisites in the practice of this specialty.

As I examined these subjects with the view of selecting one to discuss before this intelligent body of dentists, I was at a loss to know which was the most interesting and instructive.

The normal and pathological anatomy and histology of the mouth and face; the effect of the normal and the abnormal functional activity, and of mechanical stress upon the developmental processes; the influence of heredity and of vicious habits upon the development of the child; the mechanics of normal occlusion; the dynamics of the tooth movement; the principle of esthetics, etc., are all divisions of this subject, any one of which would afford ample latitude for an interesting discussion.

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*Read before the Wisconsin State Dental Society July, 1911.

It will be necessary, therefore, to restrict my discussion to a limited part of this field. Inasmuch as some members of this society may not be especially interested in orthodontia, I have decided after some deliberation to select two phases of the subject, the principles of which are applicable also to other branches in dentistry. I have selected the questions of utility and beauty. These principles are applicable to all branches of dentistry which relate to physical construction and reconstruction, but I will make the main application to orthodontia in order to restrict the size of this paper.

A utilitarian object is one whose value lies in its use, as distinguished from one whose value lies in its ornamentation. The functional use of the teeth is a utilitarian employment. The application of the principle of utility in orthodontia relates to the establishment or restoration of the normal functions in mal-arranged teeth. The principle function is that of mastication, the fulfillment of which is in proportion to the perfection of the occlusion of the teeth. Occlusion is, therefore, a utilitarian law.

Normal occlusion, in the broadest sense, involves a full application of the mechanics of occlusion. It does not consist merely in the arrangement of the teeth in each jaw into a parabolic curve and in such relation to each other as to make contact with those of the opposing jaw; even though the co-aptation be perfect. It means in addition thereto that there must be such an arrangement of the teeth, that the width of the arch; the distance of the incisors from the condyles; the extent of the incisal overbite and the degree and direction of the compensating curve will each and all mechanically correspond with the length of the cusps and the direction of the condyle path.

When such a relation exists between these several elements, the lower jaw in being projected for incision will carry each lower bicuspid and molar forward to a point end and end and in buccal (cusp) contact with the teeth above. And also, when the mandible is moved to either side it will carry the cuspids, bicuspids, and molars on one side to a point end and end and in buccal (cusp) articulation with the corresponding teeth above and the buccal row of cusps of the lower teeth on the other side will contact with the lingual row of cusps of the upper teeth.

That a mal-occlusion may be corrected by re-arranging the teeth to conform to the mechanical requirements of occlusion in any given case, cannot be questioned. The utility of such teeth in mastication, may be of the highest order, but as the principle of occlusion is a mechanical one and is in no way related to symmetry, the ornamental value of the teeth thus arranged may be questioned.

It is possible to have a perfect mechanical occlusion of the teeth without any harmonious relation to the lines of the face. We may establish a perfect occlusion and still have a double protrusion, a double retrusion, a deficient or excessive length of the lower fourth of the face. Or again, we may develop a perfect occlusion in a square angular face and so shape the arch lines as to conform to a section of an oval or circle, all of which would be bad art.

Fig. 1.

Note: The arrangement of the teeth as portrayed in this view is perfect in every detail, from a utilitarian standpoint. The occlusion, the size and form of arches, the compensating curve, the incisal overbite and the position and inclination of each tooth is perfect.

A single illustration, however, cannot properly represent the normal occlusion of all types of individuals, unless it is a composite picture; that is to say, a picture which portrays the predominating characteristics of all types combined in one illustration. Figure 1 is not a composite picture, because, in an esthetic sense, the detail in the arrangement of the teeth is imperfect and we may, therefore, be justified in describing these teeth as mal-arranged. It is certain that at least the upper incisors have an excessive labial inclination, especially for the Caucasian type.

The utilitarian is satisfied to strive for mechanical perfecttion for this is the highest accomplishment in his ambition.

It must be conceded, however, that there is another and higher quality of perfection to strive for in our work. To stop at the low standard of utility would be to fall far short of our full duty to our profession and our patients.

The practice of dentistry is an art. Indeed, it is one of the highest arts in the field of human activity, and although we have

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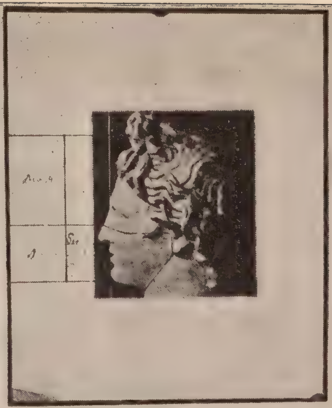

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been practicing an art, we have been modifying and remodeling distorted human pictures as artisans rather than as artists.

The field of the utilitarian and that of the artisan are identical with that of the skilled mechanic. It is a narrow field and does not involve esthetics. On the other hand art covers a broad field and not only involves the principle of utility but also the question of symmetry.

One who engages in the art of sculpture, to be successful, must have a well developed sense of balance and harmony and this talent which is so valuable to the man who chisels a marble face is much more valuable to one who rebuilds or remodels a portion of a distorted human face through the wonderful possibilities in dentistry.

Art is an application of knowledge, and in any but its infant state, it is an application of scientific knowledge. For our present purpose we will limit this application to physico-esthetic construction and reconstruction.

The more perfect the development of any given art, the more definite and concrete may be its application. In studying art, as portrayed by nature, we find certain definite laws and principles. In her ornamentation each object, by its form, texture and color, expresses its function, use or purpose and also emphasizes its characteristics; likewise the object is appropriate and adapted to the position it occupies and the material of which it is constructed.

The teeth are important ornaments of the face. The application of these principles of art to this natural ornamentation illustrates very effectively their correctness. The simple facts; for instance, that the teeth are constructed of hard materials; that they are located in the vestibule of the alimentary canal and that they are arranged in perfect occlusion and articulation; all express their purpose and function to be partly that of prehension and mastication of food. The incisors and cuspids are located anteriorly for prehension and incision and the bicuspids and molars are situated posterially for commution. The correct shapes are situated in the particular places best suited to the fullest and simplest performance of their respective functions.

But to be true natural ornaments and conform to natural laws, they must express more than their function; they must also be appropriate and adapted to the position which they occupy.

The area of the face subject to modification by orthodontic

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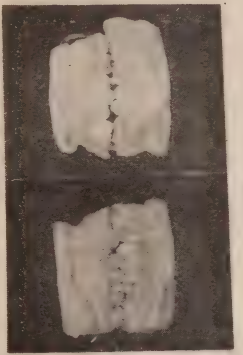

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procedure is limited to the space outlined in fig. 2. All of that portion outside of this area is not subject to change in the hands of the orthodontist. Therefore, whatever modification may be made, in this limited field, it should be such as to make it appropriate and adapted to the surrounding fixed area.

The lines of the unchangeable area and those of the surfaces of the teeth are fixed lines but those of the changeable area both of the face and the position of the teeth are subject to change. These changeable lines, therefore, when modified should be made to balance with the predominating fixed lines. It is this blending in the predominating lines that makes an object appropriate and adapted to the position which it occupies.

Figs. 3 and 4 illustrate the normal relation of the lips to each other and to the face which relation is dependent on the exact position of the teeth.

Fig. 5 represents a patient with a pouting expression or an abnormal upper and lower coronal protrusion.

Fig. 6 shows the relation of the jaws to each other. Note that the keys to the occlusion are in normal relation to each other; also that the bicuspids and molars are well interlocked. The arch line is large and well formed. An attempt was made to regulate this case by retracting the coronal ends of the anterior teeth but with indifferent success. Even though a perfect occlusion had been established the lips still protruded.

Fig. 7 illustrates another case of double protrusion. The excessive prominence in this case is not limited to the coronal zone but is also evident, though in a less degree in the apical region. Fig. 8 shows the relation of the teeth in the preceding case. An attempt was made by a prominent member of the school of occlusion to correct this dento-facial distortion by expanding both arches enough to accommodate all of the teeth but this proved to be a decided failure. Later an attempt was made by extracting the two first bicuspids on one side, but after rearranging the teeth they were still protruding and the extraction of the first bicuspids on the other side was found necessary.

Fig. 9. In this case we may develop a perfect mechanical occlusion by retruding the upper arch or by protruding the lower jaw. If symmetry is your guide you can easily decide which movement to make, but if the law of occlusion is your dependence, which movement will you decide on, and why?

This case, although a direct opposite of the preceding, may also be corrected by any one of several movements. In selecting a movement or a combination of movements, on what do you base your decision; on symmetry or on the law of occlusion.

Fig. 11 represents a case in which the bicuspids and molars interlock perfectly in two positions,—with the mandible retruded the width of a bucuspid as shown in this picture and also with the mandible protruded to the normal relation of the keys of occlusion as shown in Fig. 12. This case may be corrected by retaining the lower jaw in this protruded position which will give a perfect occlusion of all the teeth or it may be corrected by retruding the upper teeth instead. Either method will enable you to develop a perfect occlusion, but only one method will give both a perfect occlusion and symmetry.

If we insert artificial teeth of the wrong shade, size and shape for any given case, would the teeth be appropriate and adapted to the position they occupy, even though they occluded perfectly?

Likewise if we arrange artificial or natural teeth so that the arch line differs from the facial outline, would the teeth thus arranged ornament the face?

A careful examination of a large number of mouths and faces has demonstrated the fact that there is a marked difference in the arch line of different types of individuals and still each arch is appropriate and adapted to the particular face to which it belongs.

Such examination has also demonstrated the fact that there is a striking similarity between the form of the arch line and the face of the same individual. This principle of similarity or adaptation is also manifested in a large measure between the shade of the teeth and the complexion and between the forms and sizes of the teeth and the shape and size of the face.

These types of faces and teeth vary according to the innate qualties of individuals and for the purpose of study may be divided into four classes: the Angular, the Round, the Oval, and the Flat faces. In the Angular face the teeth, as seen from the occlusal view, are arranged with prominent cuspids, slight curvature between the cuspids and with straight lines from the cuspids to the third molars, giving a strong angular appearance at the cuspids. The predominating lines of both the face and the teeth are long straight lines and strong angles. In a like manner in the round face the predominating lines of the face and teeth are round, in the oval face they are oval and in the flat face the arch is broad and the width of the crowns predominates over the length. These four types of man are better known under the caption of "The Four Basal Temperaments," a detailed description of which is as follows:

The Four Basal Temperaments and Their General Indications.

GENERAL DIVISION.	BILIOUS:	SANGUINEOUS:	NERVOUS:	LYMPHATIC:
1—General form of framework.	(Fig. 13) Tall, angular; square built.	(Fig. 15) Fully, firmly rounded contour development; medium height; robust.	(Fig. 16) Delicate; slight but erect and well proportioned.	(Fig. 18) Bulky, heavy; clumsy.
2—General movement.	Steady and persistent.	Graceful and easy.	Quick, but fitful in movement.	Unsteady, uncertain; loose-jointed; sluggish, deliberate.
3—Muscular Development.	Knotty, prominent; hard; tense.	Well rounded and graceful.	Well defined; light, but sinewy.	Large but flabby and ill-defined.
4—Chest or Thorax.	Square and capacious; good expansive power.	Well rounded and capacious; deep and full.	Not broad, but prominent; very expansive.	Large, but lacking in expansive power.
5—Voice, Quality of.	Strong, but inclined to harshness.	Smooth; sonorous; full.	Not very strong, but clear, penetrating and ringing.	Poor in vibration, but often soothing and quieting in quality.
6—Complexion and Skin.	Brownish yellow; tense and inclined to roughness; dry.	Florid, smooth; warm.	Abounding in grayish tints; fine in texture and elastic.	Pallid; muddy; moist and cold.
7—Favorable Endowments or Advantageous Indications.	Strength; endurance; fortitude; decision; firmness.	Hopeful, enthusiastic; aspiring.	Remarkable recuperative power.	Calm; cool; quiet.
8—Unfavorable Endowments or Disadvantageous Indications.	Inclined to melancholy.	Lack of self-control; impetuous.	Mental fitfulness and inclined to rapid degeneration or retrogression.	Inertia; low recuperative power in pathological conditions.

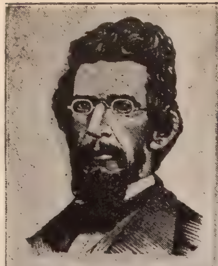
GENERAL DIVISION.	BILIOUS:	SANGUINEOUS:	NERVOUS:	LYMPHATIC:
9— Cranial Contour.	Square forehead and cranium.	Rounding and full forehead and cranium.	Cranium inclined to preponderance over face.	Forehead low and not shapely; often receding and flat.
10— Facial Contour:	Long and angular; high cheek bones.	Round and broad; well proportioned.	Delicately oval; long and narrow.	Flat faced, short and broad.
11— Hair:	Black and closely curling; inclined to coarse.	Golden to light chestnut; slightly wavy.	Brown; wavy; fine.	Coarse; straight; drab; and sparse.
12— Eyes:	Average size; black and strong in expression.	Large; full; clear; round; blue.	Above average in size; dark brown; perceptive in expression.	Small, expressionless and grayish.
13— Eyebrows:	Heavy, strong and straightly marked.	Fairly arched not well marked.	Fairly well marked and arched; finely penciled.	Sparse and indistinct.
14— Nose:	Strong in outline; Roman.	Straight and shapely.	Finely cut and often delicately aquiline in form.	Flat; also heavy and broad.
15— Lips:	Large and brownish purple; straight and firm.	Ruddy; full; curved: moderately loose.	Fine and grayish-pink often beautifully curved; moderately firm.	Large, but not shapely; loose and pale.

The Teeth as Indicated by Temperament.

GENERAL DIVISION.	BILIOUS:	SANGUINEOUS:	NERVOUS:	LYMPHATIC:
1— General color and quality of color.	Fig. 14-a) Bronze-yellow, and with strength of coloring.	(Fig. 14-b) Cream-yellow, and inclined to translucency.	(Fig. 17-a) Pearl blue or gray; inclined to transparency; dentine frequently visible through transparent enamel at the cutting edge of incisors.	(Fig. 17-b) Pallid and opaque, or muddy in coloring.

GENERAL DIVISION.	BILIOUS:	SANGUINEOUS:	NERVOUS:	LYMPHATIC:
2— General form.	Large and inclined to angular; rather long in proportion to breadth; cusps long and sharp.	Well proportioned; abounding in curved or rounded outlines; cusps rounding, and moderately short.	Abounding in oval outlines; length predominating over breadth; fine, long cutting edges and long sharp cusps.	Large but not shapely; breadth decidedly predominating over length; cusps poorly defined short and blunt.
3— Surfaces of the teeth.	Inclined to transverse ridges, and abounding in strong lines; neither brilliancy nor transparency of surface, but slight translucency.	Smooth or nearly so; elevations and depressions rounded; cutting edges and cusps translucent. Fair degree of brilliancy.	Brilliant and transparent depressions and elevations; abounding in long curves.	Surface of incisors devoid of depressions or elevations; opaque and dead in finish; even to cutting edge.
4— Contour of the upper arch; occlusal view; also called the arch-line.	Angular and quite wide at cuspids, with slight curvature between them and straight line from cuspid to third molar; moderately long anterio-posteriorly.	Round, large and wide; cuspids and bicuspids prominent. Strong curvature from cuspid to third molar and moderately strong rounding between the cuspids; short anterio-posteriorly.	Oval and long anterio-posteriorly. cuspids depressed with strong curvature between them and moderately curved from cuspid to third molar.	Very wide large and short anterio-posteriorly; continual but imperfect curvature from one third molar to the other.
5— Occlusion.	Firm and close. Well locked; strong compensating curve.	Moderately close and firm; jaw inclined to rotate in mastication; moderate compensating curve.	Deep lock long and penetrating cusps; strong compensating curve.	Loose and flat; blunt cusps. No compensating curve.
6— Gum margin of festoon.	Heavy and firm but inclined to angularity.	Round and full as regards both breadth and depth.	Delicate, shapely and fine; oval in curve.	Thick and undefined in shape; slightly curved.
7— Rugae:	Heavy and rugged in shape, squarely set.	Numerous and graceful in outline; not heavy but well rounded.	Close, not numerous; small and long.	Sparse and flat.

Fig. 19. In this picture are shown the arch lines of the four temperamental types. "A" represents the bilious. "B" the sangui-



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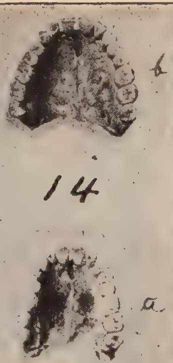

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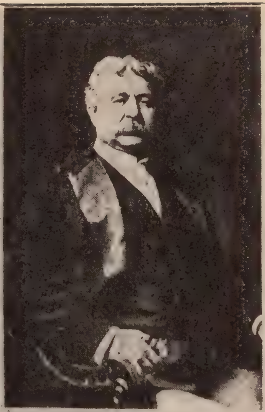

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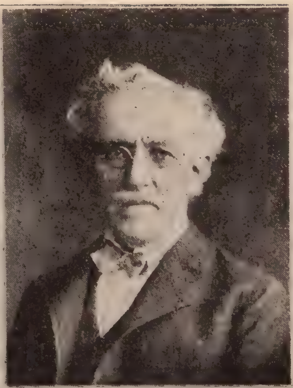

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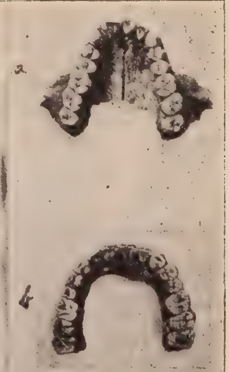

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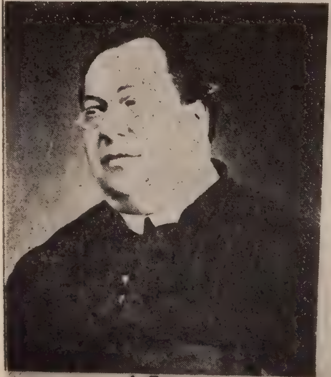

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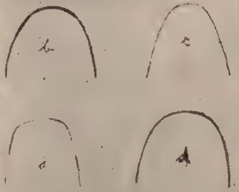

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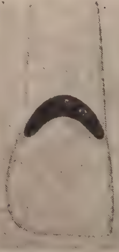

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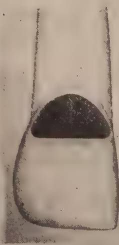

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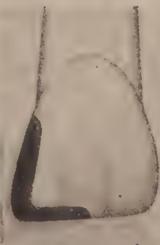

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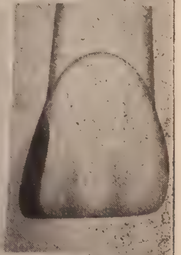

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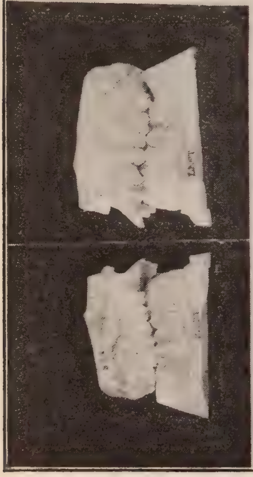
nous. "C" the nervous, and "D" the lympathic arch-lines. I have taken the four basal temperaments as described by Flagg and revised and elaborated them. It is in this revised form that they are here presented.

While this description is of great value as a foundation in the study of certain phases of art, still it is not given to represent the numerous variations or rather combinations met in daily practice. The principle of esthetic relation, however, which appears so prominently in the basal temperaments, is maintained in all the various combinations. This principle may be advantageously presented in still another form at this stage of our discourse. The best art is concealed art, or the best art is that which is so perfect that the artificial appears to be natural. This principle has direct reference to the conspicuousness of a given line, or part in an esthetic form.

If a line in a picture is repeated it is not so noticeable as when it is not repeated. When it is repeated it is subdued and balanced. When it is not repeated it stands out boldly and attracts particular attention.

Artists often take advantage of this principle to attract attention to a particular line or figure in a painting, but in dentistry where we are acting in the capacity of a repairer of a distorted natural picture, it is plainly evident that such art work should be subdued. Not so because it is not a high order of art, but rather the contrary. The higher the art the more exacting are the requirements.

We will apply this principle, in the preparation of a labiogingival cavity in an incisor tooth. (Fig. 20.) The wall of the cavity next to the gingival line should be extended beneath the gum margin, while the wall on the opposite or incisal side of the cavity should be curved to agree exactly with the curvature of the gum festoon of that tooth. Thus we have two curved lines; one formed by the edge of the gum lying upon the filling and the other by the incisal cavity-wall; both agreeing exactly in curvature. Such a filling would not attract particular attention. (Fig. 21.) But if, instead, the incisal wall were cut straight across the labial surface of the tooth, that straight line appearing but once in the picture would stand out boldly and would be inartistic. The reason for this bold and inartistic appearance of the line lies in the absence of reciprocal relation with other lines in close proximity and there-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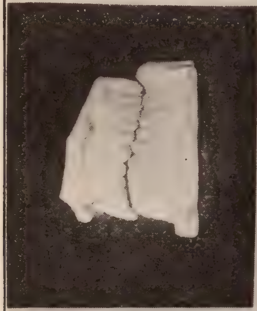
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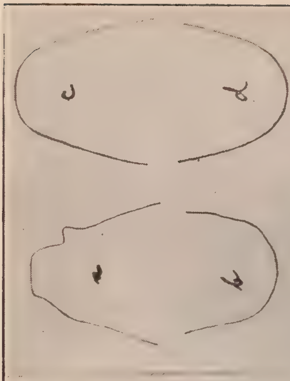

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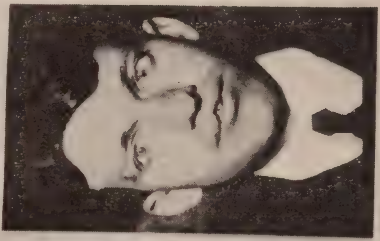
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fore such line is not appropriate or adapted to the position which it occupies. The same inharmony will result from cutting the labial wall of a proximal cavity in such a manner as not to imitate an adjacent line, as shown in fig. 22. (Fig. 22.) This line should be curved to resemble the corresponding proximal line of the tooth operated upon, as indicated in fig. 23. (Fig. 23.)

Or, again, suppose we regulate the teeth of a patient with an oval face (the nervous type) and in arranging them form an angular or bilious arch. This angular arch line would be entirely out of harmony with the predominating lines of the face and would therefore be conspicuous. Instead of producing apprehensible unity with the facial outline, it would be a foreign element in an esthetic form.

A comprehensive study of the principles of art as conceived by Ruskin, Charles Lancing Raymond, Hamilton Wright Mabie, Alphons Mucha and numerous others, as well as an extensive clinical observation, has demonstrated the truth of the principles herein presented, and in view of the principle that the more perfect the development of an art the more definite and concrete may be its application, I do not hesitate to make the following application of an arch line to a face, to illustrate the required relation in each case. I have selected for this purpose a Mr. T., a sanguino-bilious type, whose teeth I regulated five years ago.

The method of procedure was to "take a bite" of the plaster models of the mouth, using an ordinary sheet of pink wax. Then after cutting the wax along the incisal edges of the incisors and middle of the occlusal surfaces of the bicuspids and molars and removing the piece within this arch line, the wax was placed upon a sheet of paper and a line drawn on the paper to conform to the line of the wax sheet.

Fig. 24 and fig. 25 show the models of the teeth before and after treating and fig. 26 the arch lines of these models thus obtained; "a" and "b" represent the upper and lower lines before and "c" and "d" these lines after correcting the irregularity of the arches.

Fig. 27 gives two views of a plaster model of the face before treatment. Fig. 28 a side view of the face after correction. The arch line of the upper teeth after treatment as shown in fig. 26-c was separately photographed and a positive slide made therefrom. This was then bound with a positive of fig. 29, a front view of the same patient. The two positives thus bound together are shown in fig. 30.

The arch in this case contains the full compliment of sixteen teeth. The distal ends of the arch line terminate at the temple and practically opposite the central line of the eyes. Tracing it downward it passes over the malar bone and diagonally toward the matal foramen on each side. The arching in the incisal and cuspid region corresponds ot the lower line of the chin.

The outline of the labial view of the crown of the upper central incisor, magnified, will give practically the same form of line. This line, therefore, appears at least four times and in three sizes in each normal face; namely, in each upper central incisor, in the arch line, and in the face.

This esthetic relation between the lines of the teeth and the face is also manifested in many other details. However, to elaborate further would make this paper too lengthy. I have given enough detail for my present purpose.

In conclusion, I will say that artificial or natural teeth may be arranged so as to functionate correctly, so also may fillings and crown and bridge work be inserted, to fulfill this low tide of perfection, but if they do not harmonize and blend with the lines of the face, they are foreign objects and elements in the human figure. Such work is purely mechanical and not worthy of a dentist.

In view of the fact that our work consists of repairing distor tions of the most beautiful forms of divine creation, there can be no doubt but our duty is to execute this work in the most artistic manner possible to human skill.

UNUSUAL CASES IN ORAL SURGERY.*

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My excuse for presenting this paper, is to report a series of unusual and rare cases in Oral Surgery which I have had the opportunity, within the past fourteen months, of observing and treating. I shall limit myself to a short discussion of the history, symptoms, diagnosis and treatment of each case and shall not attempt to enter into the literature. This I propose to do at some future time.

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*Read before the St. Louis Dental Society, May 2nd, 1911.

CASE I.—*Empyema of the Maxillary Sinus, with subsequent Necrosis of the Superior Maxilla, in a Child three months of age.*

On February 11, 1910, I was asked by Dr. G. Lippman to see J. M., white male, aged three months, who had recently recovered from a mild attack of pneumonia. Two days before, a swelling was noticed in the median line of the hard palate. At the same time a slight amount of pus was being discharged from the left nostril, and there was an edema of the left lower eye-lid, also a slight amount of swelling of the left cheek.

CASE 1.

Personal History—Before the attack of pneumonia, had been in comparatively good health.

Family History—No syphilitic or tubercular history. Otherwise unimportant.

Physical Examination—Patient was somewhat undernourished, pale, apparently suffering very little pain. Chest normal. Pulse rather fast. Temperature 102.5°, axillary. Transillumination with a very small electric light in the mouth, showed a marked dullness in the infraorbital region on the left side as compared with a definite clearness on the right.

There was a swelling about the size of a pea in the median line of the hard palate, and some swelling was noticeable in the left cheek. The left nostril was filled with a rather thick yellow pus.

Diagnosis—Empyema of the Maxillary Sinus. At this point and before giving the course of the infection in this case and the treatment, I will say a few words regarding the diagnosis.

It should be remembered that the maxillary sinus at birth is merely a space in the superior maxilla practically filled by its lining membrane and in close apposition to the inner wall of the orbit. It is nothing more than a slit in the bone, which increases in extent as the maxillary bones develop. At three months of age it is about the size of a pea. Because of its mucous lining, which is a continuation of the mucous membrane lining the nasal cavity, it is subject to infection and may be the seat of an abscess just as it is in later life, though such cases are extremely rare at three months of age.

Regarding the other accessory sinuses of the nose, the sphenoids and frontals develope after the fifth or sixth year. Some of the ethmoids are present at birth. From this we see that in this particular case, question of infection of the sphenoids or frontals was at once excluded. From existing symptoms other than the purulent discharge from the nose, the ethmoids were excluded.

Treatment—On February 12th, I made a small incision into the swelling on the hard palate and evacuated a few drops of pus. On February 13th, the left side of the face was much larger, the swelling involving the temporal region and there was a distinct left exophthalmus, together with an edema of both of the left lids which practically closed the eye. I made an incision through the canine fossa and extended it upward to the antral region. There was a free discharge of pus and, on the introduction of a probe, necrotic bone could easily be felt. The opening was packed with iodoform gauze. For the next two days the swelling in the maxillary region decreased gradually, but the exophthalmus increased. The lids were closed from the edema and on being forced apart a bulging of the conjunctival sac near the inner canthus of the eye was seen. On February 16th, under general anesthetic an incision was made into this sac and from two to three drams of pus evacuated from the orbit. The eye at once sank back into the orbital cavity. On February 18th the condition of the patient was improved and the edema of the lids had practically disappeared. February 19th, condition worse. Another abscess had developed on the palate, more pus was draining from the opening in the canine fossa and there was an increase in the swelling over the antral and temporal regions. Pressure over the temporal region caused a free flow of pus from the opening in the canine fossa. A probe introduced through this opening could be passed up to a point just below the outer canthus of the eye and could be felt directly under the skin.

The temperature for the previous five days had been normal, and the patient had been taking nourishment better. Packing and irrigation continued for three weeks with little decrease in the flow of pus. It was decided to make an opening from without in order to establish a freer drainage for the pus, and to remove any necrotic bone which was present.

On March 25th patient was taken to the hospital, and on March 28th under general anesthetic an opening was made through the cheek, about a half inch below and to the right of the outer canthus of the eye and into the abscess cavity. A small piece of necrotic bone was removed and a free evacuation of pus took place. Bier's hyperaemia was used daily for ten days and the cavity packed with gauze.

On April 11th an injection of a 10 per cent Bismuth paste was used. This was continued each day for several days, the strength being increased to 15 per cent. A slight discharge of pus continued both from the external opening and from the opening in the mouth.

On April 18th I removed an upper temporary molar tooth which had worked its way into the opening in the canine fossa. On April 25th, 28th, and 30th, injections of three drops of an autogenous vaccine was given.

On May 6th a small sequestrum of bone was removed from the external opening. From this time on the patient continued to improve slowly. The opening in the mouth gradually closed, two or three very small sequestra of bone were thrown off at different times from the external opening, but a slight discharge of pus continued from this point.

Patient remained in the hospital for two months and a half. In August was taken to a Michigan resort for six weeks. While there a small sequestrum was thrown off after which the external opening rapidly closed. From then until now there has been no further trouble. There is no deformity present and from the picture which is shown, and which was taken a short time ago, it will be noted that the external scar is also hardly noticeable. Up to the present time ten of the temporary teeth have erupted, all perfect with the exception of the remaining upper left temporary molar, which is now being erupted in a carious condition.

CASE II.—*Simple Fracture of the Coronoid Process of the Inferior Maxilla.*

A. L. O'N. referred to me by Dr. A. Levy, white, male, age 23, chauffeur by occupation; was struck on the right side of the face on November 28th, 1910. Two days later, when I first saw the patient, he was complaining of pain on both sides of the face, particularly the right. There was a slight amount of swelling over the right tempero-maxillary region, a slight displacement, downward, of the lower jaw, with a tendency to swing over toward the left side. The patient could not open his mouth without severe pain in the right tempero-maxillary joint region. There was no

CASE II.

crepitation discernible but there was strong evidence, otherwise, of fracture at some point in the tempero-maxillary joint.

A radiograph disclosed a fracture of the coronoid process, with a displacement of the fragment downward.

The treatment consisted in applying fracture bands to the left upper and lower 2d bicuspid teeth and the right lower 2d bicuspid and right upper first molar teeth, and then wiring the lower jaw firmly to the upper. The patient was kept in this way for five weeks, receiving nourishment during that time by taking fluids through a tube. Uncomplicated fracture of the coronoid process of the inferior maxilla is extremely rare. This part of the bone is well protected and is not exposed to injuries as other parts of the mandible. Marshall, in his book on "Injuries and Surgical Diseases of the Face, Mouth and Jaws," gives as a classification of fractures of the lower jaw, according to their frequency, the following:

(1) Most frequently fractured in the region of the cuspid tooth.

(2) Next at points between the cuspid tooth and the angle.

(3) Next, between the symphysis and the cuspid.

(4) At the angle.

(5) Through the symphysis.

(6) Through the ramus.

(7) At the neck of the condyle.

(8) And least frequently through the coronoid process.

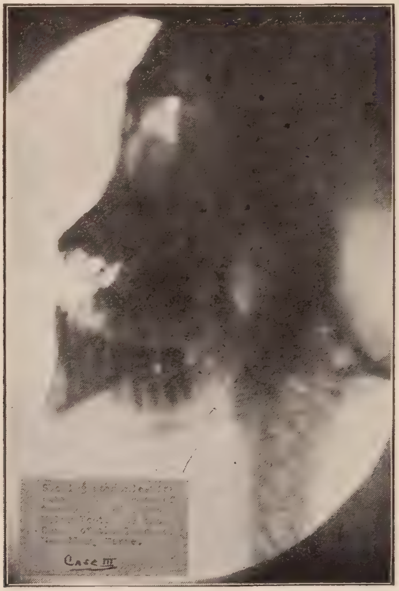
CASE III.—*Anesthesia of Lower Lip, Teeth and Gums, following Extraction of Lower Third Molar Tooth.*

On December 21st, 1910, I was called in consultation with Dr. W. M. Bartlett, to see B. R., white, female, age 28, who gave the following history. Four days ago had both upper and lower left 3d molars extracted, under nitrous oxid anesthesia. Immediately after coming out from under the influence of the gas, she noticed an absence of sensation in the lower lip on the left side. Since then she had had no sensation in this region and she had noticed a peculiar feeling in the teeth in the corresponding area.

On examination I found an area about the size of a silver dollar beginning at the symphysis of the lower jaw and extending to the left, which was completely anesthetic to the prick of a pin. The lower teeth on that side from the central to the 2d bicuspid were devoid of sensation, not responding to extremes in temperature or to percussion. The gums surrounding these teeth was likewise anesthetic.

A radiograph was made and it was found that the socket of the extracted lower 3d molar communicated with the canal of the inferior maxillary nerve. The nerve was most probably attached to the roots of the tooth and in extraction the tension on the nerve was sufficient to tear the mental nerves and some of the branches which go to the teeth.

No treatment of any kind was suggested, the patient being assured that the sensation gradually would return. This has been the case and now over four months after the extraction, with the exception of an occasionally peculiar feeling in the teeth, the sensation is restored.



CASE III.

Such unavoidable accidents are uncommon. Several cases have been reported where the nerve has been torn in extraction, resulting in severe pain, but few where an anesthesia resulted. One case was reported where the inferior maxillary nerve passed through an opening in the root of a lower right 3d molar, and, on extraction, excruciating pain resulted which lasted for two days together with an anesthesia of the right lower lip which was permanent.

CASE IV.—*Gangrenous Stomatitis and Tonsilitis following Scarlet Fever.*

On November 9th, 1910, I was asked by Dr. J. S. Myer and Dr. J. E. Cook to see A. W., white, male, aged 29, who had been suffering with scarlet fever for three weeks past. Four days before, patient noticed quite a discomfort in the mouth and throat, with bleeding of the gums, and experienced severe pain on deglutition. Mouth washes had been used with no relief, the condition on the contrary, becoming worse daily.

Examination of the oral cavity revealed ulceration of the entire gingival margin, superiorly and inferiorly, lingually, buccally and labially. There were also a few ulcerative areas on the left buccal mucous membrane. Both tonsils were similarly involved over their entire exposed surfaces, and there was an ulceration about the size of a coffee-bean on the left upper surface of the epiglottis. All of these affected areas were covered by a thick layer of dirty-white necrotic tissue. There was a most foul odor from the mouth and oozing from small vessels along the gum margin. The patient's urine contained casts and albumen, and his temperature had been ranging from 99° to 100.2° for the past few days.

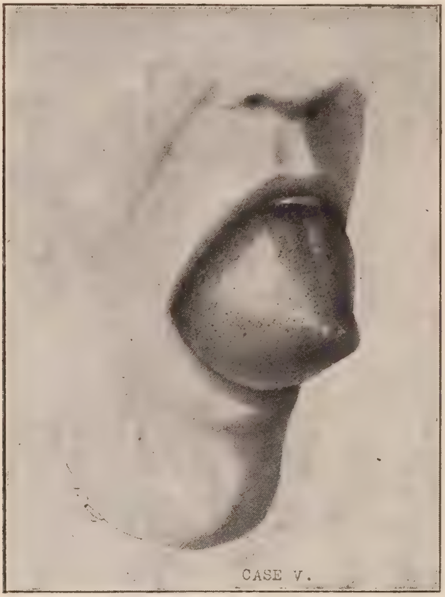
There was quite a large amount of deposit around the necks of the anterior and molar teeth and pus could be forced from under the necrotic gum margin. The teeth, themselves, were not especially sensitive. With scalers I removed as much of the deposit as possible (the patient being in bed made this very difficult), and then I curetted away the greater part of the necrosed gum tissue. I then cauterized the gingival margin with pure carbolic acid. A permanganate mouth wash was ordered used at regular intervals. To combat the destruction which was going on in the tonsils and epiglottis, a nascent chlorine spray was used on these parts, at intervals of from three to four hours. Once daily an application of a 25 per cent solution of argyrol was made to the entire affected area.

The destructive process gradually limited itself, the necrotic tissue sloughed off, and the patient made a complete recovery, in so far as his mouth and throat were concerned, within four weeks. The albumen in his urine persisted for some time after this, and the patient was advised to go to a more moderate climate for the winter. He spent two months in California, returning entirely free from any manifestation of the disease process.

CASE V.—*Acute Parenchymatous Glossitis.*

W. O. A.—White, male, married, aged 50 years, traveling salesman by occupation, consulted me first on November 9th, 1910. Patient gave the following history:

Eleven days ago while in the South he began to notice pain in his tongue. He could locate it at no definite point but said it seemed to be in the substance of the organ. The only cause which he could give was that he was in the habit of whittling pine sticks and sticking the splinters in his mouth. He thought he had scratched the under surface of his tongue with one of these splinters. He also had been chewing some fresh perique tobacco.



CASE V,

The pain became steadily more intense, especially on the right side and was more noticeable when swallowing. He remained in the South for several days under treatment, but obtained no relief.

The patient was a well-built robust man, color good, with facial appearance one of extreme uneasiness. Physical examination, negative. Personal history, negative. Denied syphilis.

On examination of his mouth a somewhat inflamed mucous membrane and several carious teeth were found. The tongue was apparently not swollen, nor was it especially inflamed. There was a very small abrasion, which was healing, on the right side, but otherwise it was apparently normal. One gland in the right anterior cervical region was slightly enlarged.

Temperature normal. The patient was extremely nervous. He said he had taken practically no nourishment for three days.

On pressure over the right side of the tongue, far back near the base, the patient complained of excruciating pain. The case at this particular time seemed to be more of a neurotic affection.

I sent the patient to a hospital and ordered cold applications to the throat and cold drinks, and gave Aspirin, gr. V every three hours. That night the patient slept fairly well, and felt somewhat relieved in the morning. An examination of his urine at that time showed some albumen, hyaline and granular casts and a few pus cells.

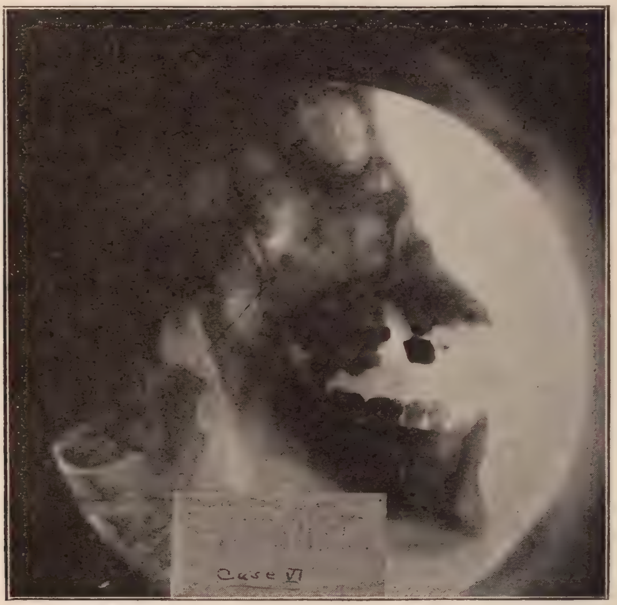
The relief which the patient had had, continued only until the afternoon of the second day in the hospital, November 10th. The pain then returned in increased severity. Large doses of Aspirin were given and Veranol in five grain doses, with little relief.

On Saturday, November 12th, for the first time, a slight edema around the orifice of the right Wharton duct was noticed. There was still no swelling of the tongue. On that afternoon a neurological examination was made by Dr. S. I. Schwab, but nothing which could be responsible for the pain was found.

By Sunday morning, November 13, a most spectacular change had taken place in the tongue. It had become swollen until it practically filled the entire mouth cavity. It protruded from the mouth, was very dry and hot. Temperature 100°. The patient was semi-conscious, breathing very heavily. Nourishment was given by nasal tube and water per rectum. A blood count was made showing 12478 leucocytes. Urine examination showed a large amount of albumin, hyaline and granular casts and a few blood and pus cells.

A consultation was held with Dr. P. Y. Tupper and an immediate operation was determined upon.

After anesthetizing the tongue with local applications of Cocain, I introduced an aspirating needle into the tongue for the purpose of determining whether or not an abscess was present, and also for the purpose of reducing the pressure by local bleeding. I aspirated ten times in as many different places and at different depths but found no pus present. The bleeding was profuse. The patient was put to bed and continuous ice cold irrigation was applied to the tongue. Nasal and rectal feeding were continued. Patient had a most uncomfortable night. Had severe pain, which was relieved only by a large dose of morphine. Patient felt better by morning. From this time he began to improve. The temperature rose to 101° dropping gradually, and, except for acute exacerbations of short duration, the pain became less intense. Within four days the tongue had become reduced to such a size that the patient could talk fairly audibly and could swallow without great discomfort. Nasal and rectal feeding were now discontinued. Most of the pain from now on was due to ulcerations on either side of the tongue, caused by pressure against lower right and left carious molars.



CASE VI.—Before.

From this time on until the patient left the hospital, a period of two weeks, the treatment consisted of cold applications to the tongue and applications of 25 per cent Solution of Argyrol to the ulcerated areas. After leaving the hospital the patient gained strength rapidly, and on January 3, 1911, was pronounced entirely well. He had been treated by Dr. J. S. Myer for his acute nephritis, from which he had also recovered.

This case is an exceptionally rare one. The diagnosis rested between Acute Parenchymatous Glossitis, Abscess of the Tongue, Syphilis, and Tabetic Crises. All with the exception of Acute Parenchymatous Glossitis were excluded.

Butlin, in his book on "Diseases of the Tongue," says: "Acute inflammation of the tongue is admitted by all observers to be a rare disease. Even the largest hospitals in this country (England) do not, in most years record a single instance. Yet the history of the disease may be written with tolerable accuracy, for the very rarity of acute glossitis has led to the publication of a goodly number of cases in medical literature."

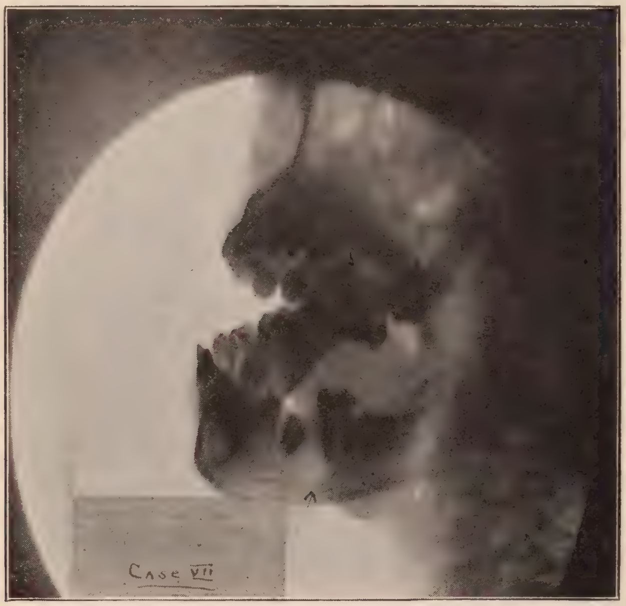
CASE VI.—After.

CASE VI.—*Foreign Body (piece of a tooth-root) in the Maxillary Antrum.*

This case, referred to me by Drs. F. Fry and W. M. Wells, is interesting chiefly because of the X-ray findings. Therefore, I shall not go into the case in detail. I simply wish to show the radiographs taken before and after operation. The one shows the foreign body in the antrum. It is a piece of the root of the upper right second bicuspid. In order to remove it the upper right first molar was extracted and the opening in the antrum enlarged. The second picture shows the condition after operation and removal of the foreign body.

CASE VII.—*Cyst of the Inferior Maxilla.*

This case, referred to me by Dr. W. M. Bartlett, is that of a child ten years of age, who, during the past four months has developed a swelling about the size of a hickory-nut extending buccally along the lower jaw from the first permanent molar to the first bicuspid tooth. It is not painful, feels perfectly hard and is gradually increasing in size. The radiograph will show a cyst which is caused by the unerupted, undeveloped and malposed second bicuspid tooth.



CASE VII.

PROCEEDINGS OF SOCIETIES.

ILLINOIS STATE DENTAL SOCIETY, FORTY-SEVENTH ANNUAL MEETING, AT PEORIA, MAY 9-12, 1911.

Discussion of the papers by Drs. T. W. Pritchett, and J. H. Prothero on "The Problem of the Construction of Good Dentures."

Dr. G. W. Dittmar:

Having been, for years, an admirer of these men and a diligent student of their excellent teachings, I am in a sense, not the best fitted, to thoroughly discuss these papers: for I could very nearly voice my entire sentiments to all that has been said with one simple word. Amen.

However, I feel that I would by no means be doing my full duty, if I did not say more. Dr. Pritchett puts the question: "Is the profession, as a whole, prepared to construct artificial dentures capable of performing, in full measure, a masticating efficiency. equal to the normal requirements, for the health and well being of the individual?—Or more tersely—Is the profession "making good in Prosthodontia?"

Applying this question to the profession as a whole, I believe that you will agree with me that the answer, must be—No, it is not.

How appropriate the following lines—though written many years ago by the late Dr. W. W. Allport of Chicago, in reference to the esthetic side of this subject; he said—"He who has but moderate ideas of symmetry, harmony of expression and color, is constantly pained by the lack of that artistic selection and arrangement of artificial teeth which serve to restore to the face the shape and expression left on it by the *Creator*—the absence of which in artificial dentures stamps him who should be an artist and an artisan as a mere mechanic, a libeler of the soul, a deformer of the human face divine." This is, indeed, a grave and serious charge which, coupled to the one acknowledged to above and to my mind equally as true: convicts our profession of being lamentably remiss in the fulfillment of its duty to the suffering public.

Though, Mr. President, it may seem that I am straying away from the subject of the papers, I believe it is entirely proper to analyze very briefly the why of this undesirable state of affairs. There is a "Dental Laboratory" located in the same building in which I have my office, and it is a most excellent laboratory, turning out work most creditably, from a mechanical standpoint. Since assuming the responsibilities of a teacher of prosthetic dentistry, I have taken much interest in what is doing in this laboratory. I have seen many impressions and bites, and dentures in every stage of construction—have seen possibly hundreds.

Too large a percentage of the impressions were very faulty, taken with misfit trays and the plaster too stiff or too thin. Quite a per centage of modeling compound impressions, used exactly where it was contra indicated—for partial cases. Plaster impressions, no doubt, 24 to 48 hours old and older, with no indication as to where the hard and soft areas were in those mouths.

Of these cases, 95 per cent and likely more, were accompanied with "mush bites" of wax and a slip indicating the shade of the teeth to be used. Not even the teeth supplied, so as to be more certain of the size and shape and shade. Not more than 3 per cent of the full sets made are constructed on modern adjustable mechanical articulators with bites properly taken by the use of the face bow, with a registration of the condyle path—think of this gentlemen. This laboratory is always busy, and in Chicago there are possibly thirty laboratories, some doing a much larger volume of business and unquestionably of the same nature.

Now please do not misunderstand me—I am not blaming the laboratories—some kinds of work they do for me is done better, quicker and cheaper than I can do it. I am placing the blame where it surely belongs—on the practicing dentists.

Now, why are the dentists, as a profession, so miserably deficient, so culpably guilty of this state of affairs? Possibly, just possibly, it is due to their early training; maybe the college was to blame. Possibly it is due to a lack of appreciation of what Dr. E. T. Evans entitled, "Thorough and Honest Dentistry." Possibly it is due to the ignorance of the patient, and sometimes it is blissful ignorance, when he thinks he has the acme of perfection because "the plate don't drop." Possibly, too, it is due to a lack of ability—"the laboratory can make a better plate than I can," is frequently heard, though they have nothing to work from but an impression—often poor—a mush bite and a certain number for the teeth. Possibly, yes probably, it is due to the environment and you foolishly say to yourself, "I must compete with that $10 plate man across the street or in the next town." (Yes, and maybe he is making a full set upper and lower, including the extracting for $20), and you foolishly reason that you must compete with his prices. Instead of doing the same thing he does make him compete with your knowledge, skill and better class of work. These, fellow members, are, to my mind, the most important reasons for those incongruities, those "deformers of the human face divine," through which as Dr. Pritchett says, "Cats and dogs might pass unscathed."

However, I am optimistic and believe that we have passed that "darkest hour before the dawning." The earnest efforts put forth for years by our essayists and numerous others, are crystalizing into results: colleges are teaching and putting into practice anatomical occlusion of artificial teeth. Students are taught that the fountain head—the very center from which the scientific construction of dentures must begin is the temporo-mandibular articulation; the position of the condyles and the inclination of the condyle path in the glenoid fossae.

That it is absolutely necessary for the greatest accuracy to mount the plaster casts on the articulator in the same relation to the joints of the articulator, that the alveolar ridges are to the temporo-mandibular joints, and for making the transfer of the trial plates from the mouth to the articulator and securing the casts in this proper relation,—the face bow must be used. Then, that fourth of an inch, protrusive bite—the differential limit, which registers the condyle path and establishes the compensating curve. Then the simple adjustment of the articulator, which I will concede is not entirely accurate—but it will get at least "near" results.

The occlusal and incisal portions of the teeth are "Bonwillized" to an extent. They are articulated for "balancing contact" and they should possess "the trinity"—the capacity to "cut or shear"—"crush and grind" the food.

Indeed the splendid influence of Dr. Pritchett on the Dental State Board of Illinois and the grand work of Dr. Prothero and others, is fast driving away the clouds, and I predict that ere many years the status of Prosthetic Dentistry will be markedly improved.

Dr. A. D. Kyner, Moweaqua, Ill.:

I wish first to express my appreciation to Dr. Prothero for the benefits I have derived from reading his paper and witnessing his demonstrations, here this evening and at other times. We are greatly indebted to him and I am sure that many men here are better prosthetic dentists because of his educational work for and among us. Dr. Pritchett has been more of a personal worker, and no one can sit under the magic spell of his high ideals without experiencing a firm resolve to treat the occlusal surfaces of teeth with more care, to the end that the unfortunate patients who are obliged to wear plates are provided with dentures constructed along the modern lines as described by the essayists of the evening.

The first point I wish to speak of is with reference to taking lower impressions with modelling compound. Dr. Prothero has described his methods, another was published in the *Dental Cosmos* several years ago, where the writer described a method of chilling the outer surface of the compound by directing a current of air into the mouth and by this process the part next to the ridge would be soft and yield to the ridge, while the outer margin would be hardened and press into the tissues. It seems to me an improvement could be made by taking the impression in the usual way, remove, chill and direct against that part of the impression corresponding to the ridge, a needle point flame and soften that only. Return to the mouth and exert hard pressure. A model obtained from this kind of an impression would represent the entire ridge with compressed tissue on either side. A plate made over such a model will have a surprising degree of suction—even in flat mouths.

The second point is about closing the flask. When I learned from the studies of Drs. Prothero and Spence that plaster was compressible and the greatest in the palatine region, owing to thinness of that part of the model, causing the plate to rock, this trouble was obviated by not placing the rubber over the palate in packing and adding to that point as needed to complete the filling of the case. This requires several openings of the flask, but will prevent broken models, and high palates in the finished plate. Also it was found that it is best to select a rubber that flows easily as there is a great difference in this respect in rubbers and one is well repaid in finding a rubber that offers the least resistance to closing of the flask.

I would like to ask Dr. Prothero if there is any advantage in combining Tenax compound with plaster in taking impressions to control warpage.

Dr. H. J. Goslee, Chicago:

Ordinarily I would feel particularly honored in being called upon to participate in a discussion of these two excellent and scientific papers, but when I recall the statement made by the genial chairman of the Program Committee in extending an invitation to me to the effect that he wanted me to discuss these papers particularly, because he understood I did not believe in the anatomical arrangement of artificial teeth, I felt somewhat hurt.

I have always believed in the scientific anatomical arrangement of artificial teeth. I have not gone to the same extent into the subject Dr. Prothero and Dr. Pritchett have, but I have always believed in the truthfulness of the statements which came from them, and it would be impossible for any man, who is honest with himself, to teach prosthetic dentistry without teaching practically the substance of what Dr. Pritchett and Dr. Prothero have given us tonight. I have believed in the subject since the early reading of the work of Dr. Bonwill. I believe progress was delayed somewhat by a little too much science in the beginning. Many of us do not understand the geometrical equation given to us in the presentation of this subject by Dr. Bonwill. All of us, however, realize the practicability of the particular features which he offered to us, and those of us who have been at all successful in the construction of artificial dentures have followed them to a greater or less extent. I think if nothing else has been gained tonight, you have learned from Dr. Prothero and from Dr. Pritchett that you cannot expect to construct artificial dentures that can be used successfully, with the artificial teeth as you procure them from the dental supply house. Indeed, gentlemen, that is where the greatest fault lies in the construction of artificial dentures. The dentist expects the manufacturer to furnish him with teeth which are adaptable to every case. Such a thing is absolutely impossible in the first place; should not be expected in the second place, and, in the third place, whenever you expect a glazed surface of porcelain to do masticatory work you will be disappointed. The occlusal surface of a porcelain tooth should never be placed in a mouth until the glazed surface has been ground off, and if we have not learned anything else, we have learned that we must not expect the manufacturer to give us teeth which can be utilized for masticatory purposes without grinding. We must adapt those teeth to our particular and individual case and, second, we must grind the teeth in order to get the surface of porcelain which will masticate food.

There is no better substance, not even the natural teeth, for the actual purpose of mastication than porcelain, providing it has been properly prepared. I want to say one thing more, and that is with regard to modelling compound impressions. I would not want you to believe that even Dr. Prothero believes that he can get a better result from modelling compound impression than he can from plaster. I call your attention to the fact that he stated the easy cases can be taken in modelling compound and never the difficult ones. If you will use modelling compound in the average easy case and use it in the manner he has indicated to you, you can obtain a good impression, and owing to the expansion of plaster of Paris, to lack of change or warpage in modelling compound, you may have for the easy cases a better model resulting, but in proportion as the case becomes more difficult, in the same proportion must plaster of Paris be used. I do not know that I am prepared exactly to agree with Dr. Prothero in the use of dry heat in bringing the flask together, because I am afraid that if it is not very carefully used, possible disintegration of the vulcanite might result. I do believe that if we can keep moisture away from the plaster it is stronger, but I think if we boil our case only a sufficient length of time to soften the rubber, and if we do not have too much, we will get more uniform results by bringing the flask together under wet heat than dry heat. The pressure that is brought to bear in bringing the flask together is increased in proportion as our surplus of rubber increases, and if we can get an exact amount or approximately so of rubber, we are not going to use anywhere near enough force to destroy the plaster matrix.

Dr. Arthur D. Black, Chicago:

All of this matter, as presented here tonight, applies to setting up of teeth when both upper and lower full dentures are to be placed in the mouth. I would like to ask which of the procedures mentioned apply to cases in which the patient's own lower teeth are present and a full upper denture is to be made? I understand that the direction of the condyle path would be indicated by the lower denture, and it would therefore be unnecessary to register it in the patient's mouth. There are so many cases in which an upper denture only is made, that I should like to have Dr. Prothero state which steps, in what he has presented, apply to them.

Dr. J. N. Crouse, Chicago:

I wish to give briefly the history of the first office I went into, where an old fellow did not do anything but extract teeth and make plates, and he would take young girls, seventeen years of age, with cavities in their teeth, clean their mouths, take out all their teeth, and put in rubber plates. It was my privilege to see some of these mouths some years afterwards, with no ridge at all, everything gone, and this condition occurred in two sisters of mine in whom the teeth were removed simply because they contained small cavities, and if any of you have any idea that dentistry is not increasing in efficiency, there is an illustration of what occurred about fifty years ago.

Dr. J. W. Cormany, Mount Carroll:

I want to say to you country boys that you need not expect the Chicago men to discuss this question because it is entirely out of their sphere of practice. They do not make artificial teeth. No sir. (Laughter.) It is only the country dentists who have that to do.

Dr. Prothero and Dr. Pritchett have come before us tonight and given the country dentist a lot of information, and I want to thank both of them for it.

As to the dry heat proposition, I have used dry heat myself for years. I do not remember ever heating up the flask and boiling it in water. When you take an impression of the lower jaw, the ridge sometimes is very thin, and we wonder how we are going to get a model without breaking that off. It is thin around in front, and I got on to something the other day which worked admirably. I used a match stick, put down in there, poured the plaster over that, and found that would hold it. The other day I took my impression tray and cut a piece out about two inches long and about one-half inch wide, according to the height of the ridge, and set it right in the impression, and I poured my plaster in there, and I took out that model so beautifully that there was no breaking of it at any place, and this worked so well with me that I could not keep my seat without telling you about it. I have been practicing dentistry and have made plates a long time, and have had good success.

Dr. E. M. Robbins, Carthage:

Dr. Cormany's plan for strengthening a thin model does work like a charm. I had occasion to use that same system years ago in a case having a narrow ridge. There are many little things which come up in one's practice and which would be of value to others if reported. On the cover of the *Dental Cosmos* you will find written this: "Observe, compare, reflect, record." We ought to make a note of these things, report them, and the time will come when they will do somebody some good.

Dr. E. H. Allen, Freeport:

I do not agree with the dry heat problem in pressing plaster together. I do not believe it is the hot water that breaks the model nor does the damage. It is the packing of too great an excess of rubber and putting on too great a pressure. It is a hard matter to get rubber warm enough to run out like molasses under any heat that you can apply outside of the vulcanizer. If I wax up the case, and invest it in the flask, I can make a very close guess—as to the exact quantity of rubber required. I would rather feel that I had packed too little than too much rubber. Would rather open the flask if I can not see any evidences of surplus, and then supply more rubber if needed.

With reference to the strength of reinforcing the thin ridge in the lower jaw, I do not take any stock in it at all. That piece of impression tray you put in there takes the place of the plaster, and it makes the model very much weaker. The best way to get at that is to varnish your impression with shellac, and let it soak in, and then after that is dry, put on a thin coat of sandarac varnish and pour the impression. When you have "run off" the model, wait until the plaster gets hard, this you will know by the heat produced by the chemical reaction. Then with a sharp knife shave off the impression until the discoloration made by the shellac appears; this warns you that you are near the model.

It is easy to see, that if the impression was shaved at all points where the model was delicate, there would be no particular danger of breaking it, as the impression can be easily broken away without injury to the model.

Dr. Pritchett (closing the discussion on his part):

I have nothing in particular to add except to say that you have been very nice and pleasant, and inasmuch as there have been no serious differences of opinion expressed by those who have taken part in the discussion upon the question in general, I believe we are all all right. (Laughter.)

A Member:

I would like to ask Dr. Prothero if a layer of tin foil on the model would prevent the breaking down of the plaster under pressure?

DR. PROTHERO (closing the discussion):

It would assist some, but you would have enlargement of the model there.

In answer to Dr. Kyner's question, with reference to mixing plaster with cement compound. I have used it some. It is useful for some purposes, but has no special advantages over plaster as an impression material.

In regard to the needle flame he directs on the ridge and nowhere else, I will say that he does not accomplish what he could do if he were to heat the whole impression surface. In an upper case, the impression will rock more than if he heated the whole impression surface.

DR. KYNER:

I referred to the lower impression, it will work in the lower, but not in the upper.

DR. PROTHERO:

Dr. Goslee is inclined to question the value of modelling compound for impressions, not in all cases, but in the majority of them, and leaves the idea that it is not as good as plaster-of-Paris except in simple cases, and then in simple cases you may get just as good results with plaster-of-Paris, or you may not. I was a thorough and firm believer in the use of plaster-of-Paris for years, and I know I can handle it right, but I know I can take a better impression with modelling compound in those cases where it can be used than I can with the plaster. A few years ago it would have been rank heresy for any one to have said that they used modelling compound in these cases, for making impressions. But I have reason for the belief that is in me, in the fact that my patients have difficulty in getting dentures out of the mouth when made from modelling compound impressions. I have adhesions that I have never dreamed of before, and you can get the same results if you handle it right. I want you to try it in those cases where it is indicated, and not try it in those where it is contraindicated.

DR. ROBBINS:

Do you use warm water or dry heat in the first instance?

DR. PROTHERO:

I use warm water.

Dr. Black asked a question in regard to the use of this system when a lower denture was present, or when all of the teeth or most of them were present, and an upper denture was to be constructed. It is unnecessary in that case to take a protrusive bite. You follow the direction of the condyle path. You should get the models the right distance from the hinges, and you then proceed without taking the protrusive bite. If you use a face bow in connection with crown or bridge work, you will not have to grind the cusps and pumice them when you fit them in the mouth. It is just as rapid, and as you become accustomed to this method of taking impressions, you will get a greater amount of pleasure from this system of occluding crowns and bridges than from any operation you can carry out in prosthetic dentistry. Dr. Pruyn has recommended oxyphosphate of copper for absorbing flabby tissue, spreading it over the plate, putting it in the mouth, pressing it up to place, holding it there until set, and wearing it for several weeks. In four or five weeks all flabby tissue will sink under the pressure and you can take an impression and make a new denture which will rest on solid tissue. That is one of the best methods I have followed out.

As to the use of dry heat, if you would make a few experiments with plaster-of-Paris with wet and dry heat, subjecting it to pressure, you would not dispute the fact that wet heat in closing a flask causes greater disintegration of the plaster-of-Paris which is saturated with water than does dry heat. If you neglect the flask and overheat the plaster to 600 degrees temperature, you can disintegrate the plaster, but if you do not heat the case beyond 220 degrees, you will not cause injury. The crystals stand a greater amount of pressure, and if you have an excess of rubber, there will be no yielding of the surface. That is important. I boiled my cases for years, but not for six years have I boiled a single case, and I know I get better adaptation. We used to be afraid that if our patient stepped down stairs the denture would drop out. But now, when it takes a pull of thirty or forty pounds to dislodge a denture, I feel as if I am getting results, and I get them by dry heat and modelling compound impressions and by safeguarding the different points I have mentioned.

There is one thing to which I desire to call your attention: you can quickly heat the metal part of the flask, and the interior will be cold, because the plaster is a poor conductor of heat. They make big iron safes and line them with plaster because it is a poor conductor of heat, and one of these safes will go through a hot fire and its contents will not be destroyed by the excessive heat because it takes a long time for the heat to get through the plaster walls. In using dry heat or even hot water heat, it takes a long time for the heat to penetrate the interior of the flask where the rubber is held in the matrix. You must render it plastic. How to vulcanize and at what temperature? Never above 290 or perhaps 280 and 290. It takes two and a half hours, depending upon the weight of rubber. If you get a quality of rubber which is more dense, will take a higher polish, is much more elastic, then you can vulcanize it at 320 degrees in about 55 minutes. What is the equivalent under steam? I cannot tell you the exact number of pounds, but it runs up to about seventy pounds of pressure to the square inch.

As to whether I can get good adaptation where silver or tin foil is used on the model, I will say that I do not like tin foil. I do not use it. I used to use liquid silex. Now, I apply nothing. I polish the palatine surface first, and then the lingual surface. It does not interfere with the adaptation at all. You would be surprised to know what comfort the patient can derive from wearing a denture that is finished on the palatine side. There is nothing to irritate the tissues.

WISCONSIN STATE DENTAL SOCIETY, FORTY-FIRST ANNUAL MEETING, AT EAU CLAIRE, JULY 11-13, 1911.

DISCUSSION OF THE PAPER ON "DENTAL LEGISLATION" BY DR. MARLOW.

Dr. M. L. Christensen, Oshkosh:

It seems to me that the preliminary educational requirements are pretty well covered under the new amendment. One of the suggestions perhaps, which is the fact of a man's advertising to do work being considered prima facie evidence of his practicing, I think ought to be put in force. It would cut out a good many of those practicing illegally. We had a case of this in our city. The board caught two of them. I think our motto now is a good one and I think Dr. Marlow's suggestion of appointing a committee from the state society to draw up amendments to be presented at the next legislature is a good one.

DISCUSSION OF DR. WENKER'S PAPER ON "ORTHODONTIA."

DR. CARL B. CASE:

I have listened to the essayist's paper with much interest. He has chosen a subject which is intimately related to every phase of dentistry—beauty and utility. They are the prime objects of operative and prosthetic dentistry, and orthodontia. In the construction of fillings, crowns and bridges, the object is not only to prevent decay, give spaces and give service to mastication, but to produce the greatest harmony between the artificial and the natural.

Dr. Wenker makes a very good point when he states that quality in dentistry is measured as much by the elimination of the conspicuous or the similarity of the artificial to the natural, as by the service or utility of the work.

In the construction of artificial dentures, we go further than that. The possibilities of improving or restoring the facial lines and contours by correctly and artistically imposing teeth and building up the gum sections are infinite. In this connection the four basal types of which the essayist has spoken at length in an interesting way, should be given serious consideration. It is seldom, however, that the characteristics of these types develop at the ages when tooth regulation is most extensively practiced, while they will be strongly in evidence at the time when artificial dentures are required. It is my opinion that as the natural changes take place in the facial lines, stamping the characteristics of each of the four types, a similar change may take place in the dental arches to continue the harmony.

Art and beauty are as closely related to dental orthopedia as they are to dentistry. While the dentist has his raw material to build up teeth almost at will, orthodontists are handicapped by being obliged to move the natural teeth to the proper relative positions by slow methodical force, which requires constant attention covering months and frequent changes to meet the demands. He works, or should work, to accomplish a result which will not only give the best service from a utilitarian standpoint, but which is one of harmony and symmetry in the face.

But first, it is absolutely necessary to determine correctly the character and extent of the deformity before it can be scientifically and artfully treated. This carries us back to the fundamental principle of dento-facial orthopedia diagnosis. We cannot determine this by examining the teeth alone. No dental irregularity or malocclusion can be used as a sole basis for determining the character of the deformity or deciding in favor of or against the extraction of teeth. The diagnosis is promptly made from an intelligent observation of the face to note wherein the changeable area is out of harmony with the balance of the face. This seems to differ radically from the essayist's idea of the area which can be changed by tooth movement. If we consider the entire mandible as constituting a part of the changeable area, then we must be believers in the old idea of "jumping the bite." But I doubt very much if there is a man today who still believes in the possibility of jumping the bite, provided he has made experiments along that line. It has been tried often enough, but has invariably proven a failure. This area alone is the only section which can be changed by tooth movement. Our object must be not utilitarian alone—not the mere establishment of normal occlusion and alignment, without a thought as to what changes may be produced in the face to beautify it as well—the production or reconstruction of the greatest possible harmony and symmetry.

We sometimes see extremely abnormal conditions, such as bimaxillary protrusions and retrusions. The peculiar thing about this type of face is that they are commonly accompanied by normal or almost normal occlusion, in which case, according to Dr. Angle and his associates, regulating is not required. Although the teeth may be in compartively normal relation to each other, they do not by any means on that account indicate that the facial lines are in harmony; that if the upper and lower teeth are placed in proper relation to each other, regardless of the movement, the facial lines will in consequence become normal and harmonious.

Here is a similar case of bimaxillary protrusion with anterior arches decidedly crowded and mal-arranged, but with a normal occlusion of buccal teeth. Imagine the result of maintaining the full complement of teeth, as taught by Angle, and placing them in alignment. The already protruded lips would be further protruded. The extraction of four teeth made a desirable change in the face, without marring the utility of the teeth, which would have otherwise been impossible.

Here is another case showing the bimaxillary retrusion of the teeth as expressed by the retruded condition of the lips. The upper and lower anterior teeth were moved bodily forward, not tipped upward, almost one half of an inch, producing the greatest possible harmony in the facial curves by the greatest advisable tooth movement.

Here are ten faces of all combinations between the two extremes, grouped about a central face, which will serve to express our idea of perfect facial harmony. Each face as you can see expresses a different deformity, though in some the occlusion and slant of the teeth are almost identical with each other.

Here are five faces showing different deformities, though the teeth have almost the same occlusion and slant. What man is so egotistical as to mean that he can decide whether upper teeth are protruded or the lower teeth retruded by examining the occlusion alone? From a utilitarian standpoint there is no question as to our ability to establish a normal occlusion under almost any circumstances, but that as a sole object is an evasion of the real issue.

In this case is shown very much the same occlusion. Although the upper teeth are undoubtedly protruded, the greatest deformity lies in the undeveloped mandible. However, since it was impossible to change that in any respect and our object was to produce the greatest harmony and beauty between the portion of the face we can change and the portion we cannot, two upper bicuspids were extracted to permit the retraction of the anterior teeth. Had the chin been well developed, the intermaxillary force might perhaps have been employed, but here such a method would only have accentuated the recession of the chin.

Here is another similar malocclusion, which is almost entirely due to a protrusion of the crown. An attempt was made to correct this by some eastern man without extraction before it came into our hands. There is no question but that he could have produced a normal occlusion by a forward movement of the lower teeth which would have caused the chin to have appeared receding.

We produced a more desirable change in the face by extracting the upper bicuspids.

I have brought these cases forward to prove that the extraction of teeth is sometimes necessary to produce facial results which are artistic and harmonious. Teeth should never be extracted to make regulating easier, when the same beneficial results can be produced without it.

Here is a case of mal-erupted cuspids with upper buccal teeth in full mal-interdigitation. Had the occlusion been created by opening spaces for the cuspids and moving the lower teeth forward, a protrusion of both the upper and lower would have resulted.

Here is another which shows the mal-occlusion of the teeth and might be diagnosed either as a case of upper retrusion or of lower protrusion, but upon examining the face we find that the upper lip is decidedly retruded, there being deep depressions about the allae of the nose. A normal occlusion might have been established by moving the upper teeth forward without considering that the face needed filling out at this point, which would have been poor orthodontia. The contour appliance was adjusted to the upper teeth for the purpose of moving the incisors bodily forward.

Another case here shows a dental occlusion which is somewhat similar. This might be diagnosed either as a case of upper retrusion or of lower protrusion, but upon examining the face, we find that the lower teeth are decidedly forward of their normal position, while the roots of the upper teeth are back. The finished face shows the result of extracting a lower bicuspid on each side, retruding the anterior teeth, at the same time producing a forward movement of the upper anterior teeth and thereby creating a change in the face which was one of harmony.

Here is a face in which the upper and lower lips are well placed and a face in which the deformity lies entirely in the upper apical zone, even affecting the end of the nose. A retruding movement applied to the roots of the upper anterior teeth created a very desirable change. We can only rely on our own judgment and in the regulation of teeth strive to produce in as far as we are able, faces which are in keeping with our own idea of harmony.

DR. FEDERSPIEL:

Dr. Wenker's paper is very interesting, but it seems to me that it is not practical as the subject is rather that of a hypothesis and theory. You will also notice that Dr. Wenker's paper, as well as the discussion by Dr. Case, is limited entirely to the treatment of cases beyond the developmental period.

Dr. Case in his discussion criticises the teachings of Professor Angle, because the Angle school of orthodontists depend upon occlusion as the basis of the science of orthodontia.

In the year 1900 Dr. Angle founded the Angle school of orthodontia, and it was my good fortune to be a member of the class of 1902. I have had the opportunity as a specialist in orthodontia and as a member of the American Society of Othodontists to witness the splendid progress of orthodontia. It is today recognized as an exact science; a science in which men do things and get results. The difference between orthodontists of the new school and those of the old school is this: that the new school orthodontists correct malocclusion of the teeth during the period of teeth eruption. If you read the writings of the old school orthodontists, you will learn that they advise the correction of malocclusion after the teeth had all erupted. The success in orthodontia like all other branches of medicine and of dentistry, must depend on four cardinal principles in the consideration of cases. First, the etiology; second, the diagnosis; third, the treatment and fourth, the prognosis. By etiology we must attempt to find the causes that produced the deformity; by the diagnosis we must be able to differentiate one form of malocclusion and dento-facial deformity from that of another deformity affecting the same area. According to the writings of Professor Angle, we learn that he divides malocclusion into three classes, with subdivisions of the second and third classes. Dr. Angle recognized mal-position of the teeth and mal-relations of the arches, but during the progress of orthodontia, we learn that Dr. Lischer of St. Louis, divides malocclusion and dento-facial deformities into the following: first, mal-position of the teeth; second, arch mal-relation and third, mal-formations of the jaws. To me, this classification at that is not quite clear, as in my practice I find that there is another deformity that I must frequently correct, which is mal-position of the jaws. So that if we wish to make a correct diagnosis, we must be able to differentiate between the mal-position of the teeth, arch mal-relations, mal-formations of the jaws and mal-position of the jaws. Mal-position of the jaws is a deformity which frequently is produced during the period of growth, especially at the time when the glenoid fossa is being formed. Careful observation of the sections of a number of foetuses and infants, has satisfied me that this fossa is exceedingly shallow at this time and develops in depth and size simultaneously with the eruption of the teeth. Clinical experience also assures me that in cases where I find the lower jaw distal to normal, the upper arch narrow with the anterior teeth protruding, I am convinced by expanding the upper arch and reducing the slight protrusion of the upper anterior teeth sufficiently to occlude mesio-distally with the teeth of the mandible, providing the patient voluntarily brings the lower jaw forward, I would obtain a correct relation of the teeth and improve the facial lines. I am also convinced after much experience in the treatment of these cases that when I attempt to correct these abnormalities after the patient had reached the age when the teeth had all erupted and after the alveolar processes and the jaws had developed and the muscles had become stronger and more set, that the treatment, notwithstanding the use of modern retainers will in most cases prove futile, so that if these cases of abnormality were treated during the time of dental growth, then there would be no tendency for the teeth to assume their original position. The treatment of cases in which the dental area was already developed, was invariably unsuccessful, while on the other hand, orthodontic treatment during the age of dental growth, proved successful in every case. I am convinced that the shifting of the mandible forward in cases of distal occlusion, is an impossibility after the glenoid fossa is developed. I believe that if we desire to successfully correct malocclusions of the teeth, it must be done during the period of tooth eruption, so that each and every tooth will be placed in normal mesio-distal relation, thereby permitting the patient to functionate the teeth as they should functionate; thus enabling plenty of blood and lymph to be sent to the adjacent parts for development along normal anatomical lines.

What I desire to impress upon your minds is this, that the proper time to correct malocclusion of the teeth is during the period of dental growth, and I believe that at that time no man has any right to attempt the extraction of teeth for the purpose of establishing normal occlusion and proper facial lines, but, if patients desire orthodontic treatment after the developmental period, I must admit that we cannot always establish harmonious facial lines by depending upon a normal relation of the inclined planes, so I think I have made myself quite clear in drawing a distinct line in the treatment of cases before and after the developmental period. I thank you.

Dr. Wenker (closing the discussion):

I am very grateful for the generous discussion, but do not agree with Dr. Case and Dr. Federspiel in some of their contentions and doubt whether any further discussion would bring us any closer.

The principles which I have presented cannot be digested in a short time, and I am firmly of the opinion that they will be accepted, at least in part, by the scientific men of the profession, in the course of time. I thank you for your kind attention.

ST. LOUIS DENTAL SOCIETY, MAY 2, 1911.

DISCUSSION OF DR. LOEB'S PAPER ON "UNUSUAL CASES IN ORAL SURGERY."

Dr. F. C. Rodgers:

I wish to express my thanks and appreciation to the essayist, Dr. Loeb, for presenting this very interesting paper of unusually rare cases, illustrated with photographs and the X-ray plates, showing the condition before and after treatment, which added additional interest to the thorough and masterly way the subject was presented.

It is very seldom that the ordinary practitioner has the opportunity of seeing these rare pathological conditions, so the paper was not only interesting, but educating to those who were present.

We are proud to have a man in our midst, who possesses the rare ability to recognize and successfully treat obscure lesions.

Dr. E. P. Dameron:

I desire to express my appreciation and pleasure at having heard this extremely instructive and interesting paper and having seen these pictures, I feel that the society is very fortunate in having Dr. Loeb with us this evening.

I was particularly interested in the case of the child of three months of age. Dr. Loeb handled this case beautifully especially when the age of the patient is considered. I was also interested in the case of anesthesia resulting from extraction of the third molar. These extraction cases come into our practice every day and it is most appropriate that our attention be called to the post-operative conditions that may arise and to their probable outcome. Again, I express my appreciation of the paper.

Dr. LeGrand M. Cox:

Mr. President: I wish to congratulate Dr. Loeb in the able manner in which he has presented this paper by giving us a report of these unusual cases in oral surgery.

Case I.—This is very interesting on account of the smallness of the maxillary sinus at this age and the extent of the infection with the subsequent necrosis. The vitality of the child being lowered by pneumonia and poorly nourished, no doubt, left the nasal mucous membrane with little resistance and the sinus became infected in this way extending over a considerable area. Free drainage and irrigation and allowing nature to throw off the sequestrum, was the best treatment and the results he obtained fully proved this. I wish to ask Dr. Loeb whether the paralysis developed after or before the external incision on the face?

Case II.—Fracture of the coronoid process of the inferior maxilla is interesting on account of the rareness of fracture at this point. I cannot understand how the inferior maxilla could be displaced downward or to one side in a simple unilateral fracture of the coronoid process, unless the force was great enough to cause a unilateral or bilateral dislocation of the condyles. The X-ray would be the positive means of making an accurate diagnosis in a fracture of this kind. After adjusting the parts, wiring the lower jaw to the upper is sufficient, using fracture bands or simply passing the wires around the necks of the teeth and wiring them together.

Case III.—Anesthesia of the lower lip and gums may follow any severe injury to the inferior dental nerve; injury to the nerve while removing impacted lower 3d molars, fracture of the lower jaw, resection of the nerve for the relief of trifacial neuralgia in the 3d division of the 5th and in removing a section of the mandible for the correction of a marked protrusion of the inferior maxilla. The anesthesia usually passes away in from four to twelve months and no special treatment is necessary. I have seen a number of cases following injury to this nerve.

Case IV.—I would call this ulcerative stomatitis because gangrenous stomatitis leads to extensive sloughing of the cheek and is more destructive and is usually met with between the ages of two and five years. This disease is also known as Noma and Cancrum Oris.

Case V.—Acute Parenchymatous Glossitis is a rare disease, most common in young adults, unusual in the aged, and very unusual in children. It is much more common in men than in women and tends to occur in the winter months. It begins suddenly with pain and stiffness of the tongue, which greatly interferes with speech and mastication. Swelling begins at once and within twenty-four hours becomes enormous. The tongue is projected far out of the mouth and is held there rigid and immovable.

The real cause for this condition must be sought in bacteria. This man was in the habit of holding tooth picks in his mouth which probably caused the abrasion on his tongue which left open avenues for the entrance of bacteria. The tongue normally has a strong resisting power to bacteria, the vital resistance is lessened though by injury.

I would prefer Butlin's treatment to aspirating. This is accomplished by making an incision on the dorsum of the tongue on each side of the median line. This relieves the tension, affords drainage and is followed by the rapid abatement of the swelling. Each incision should be about two thirds of an inch from the raphe and should penetrate to the depth of one third of an inch. Such incisions will not be dangerous nor is serious hemorrhage apt to follow.

Case VI.—This is interesting because it shows what the X-ray will do toward clearing up cases that are doubtful and locating foreign bodies.

Case VII.—Dr. Loeb told me that he operated on this case this afternoon and found an undeveloped bicuspid tooth within the cystic walls, and it seems to me that this could be classed as a Dentigerous Cyst. The X-ray pictures of all these cases are beautiful.

Dr. Virgil Loeb (closing the discussion):

I wish to thank the gentlemen who were kind enough to say a few words in discussing my paper.

In answering Dr. Cox, I will say that the paralysis in Case I developed before the external operation. There was no injury to the facial nerve from the operation.

In Case IV the diagnosis of Gangrenous Stomatitis and Tonsilitis, was made on account of the extensive amount of sloughing of the tonsils. Otherwise I should have probably made the diagnosis of a very severe Ulcerative Gingivitis and Stomatitis.

I regard the Butlin method of free incision as probably the best in the treatment of Case V, but I aspirated in this case to determine whether or not an abscess was present, and also knowing that by aspirating I would get a sufficient amount of bleeding.

The question as to whether the cyst in Case VII is a Dentigerous cyst is still not clear in my mind. The tooth undoubtedly was the cause of the cyst, but did not lie entirely within the cyst cavity. Further than this I do not think there were any questions to be answered.

CHICAGO DENTAL SOCIETY.

A regular meeting was held September 19, 1911, with the President, Dr. G. Walter Dittmar, in the Chair.

Dr. J. N. Crouse read a paper entitled "Patents and Patent Litigation of the Dental Profession; Past and Present."

DISCUSSION.

Dr. C. P. Pruyn:

It is indeed a pleasure to discuss a paper written by Dr. Crouse. This man has been a leader in the dental profession for a great many years. He was a leader when I came into the profession; a man very aggressive working for the benefit of the profession, oftentimes working for the benefit of the profession to his own physical and financial detriment. We in Chicago who have known him and have been close to him during all these years love him. He is a peculiar man, different from most of us. He has his peculiar characteristics. He has his own way of doing things, but he does things (applause), and in doing things he has done things for you and for me. The present generation of dentists know but very little about the trouble we had with the old rubber company. It so happened that I came into the profession during the waning years of the old Cumming's rubber patent. You can hardly realize that once upon a time dentists had to pay the rubber company for the privilege of making rubber plates. That was a fact, and we who have passed through that experience feel differently towards this matter than the young men who are coming into the profession today. We know what to do. And Dr. Crouse has come to us and has protected us during all these years from innumerable patent sharks who would have exacted tribute from us. Suppose that each one of us for the last twenty-five years had been obliged to pay fifty dollars a year to the tooth crown company, or some other company for the privilege of doing some of the things we now do in our daily practice.

Now, a new thing comes up, and that is the Taggart patent. In considering this matter we should leave out the matter of ethics. When a man by his experimental work gives us the product of his brain, many people think it should be considered just as tangible, and valuable as the product of his hands. Whether it is, or is not, that point is not up for discussion tonight. What we are most interested in is this, what shall we do in our present consideration with the Taggart patent? A movement has been established whereby we may be protected for the sum of fifteen dollars, not fifteen dollars a year, but for a period of seventeen years, a little less than a dollar a year. That is not very much, is it? I really wonder if many of us stop to think how much we are benefited by it. What do you think about it? It seems to me, we are greatly indebted to Dr. Taggart for what he has done. He has provided us with a method which has practically revolutionized the filling of teeth, and not only that, it has opened to us wonderful possibilities in casting cusps and crowns and bridges and various methods of doing better work than we did before.

A word or two more with reference to Dr. Crouse. You do not know him as well as I do. You do not know what it is he has done for you, and what he is preparing for you now by the present arrangement. I wish you could know him better. I wish you could be convinced that he is as honest and true and straight as any man who ever lived. He is trying to do something for your benefit, certainly not for his own benefit, because he has been injured by it years ago. He told you that he was solicited to accept a bribe of a million dollars, but he did not accept it. He stood by us then and he is standing by us now. He has lost money by it, and he has injured himself physically and financially for our benefit. I take great pleasure in paying this tribute to Dr. Crouse. Dr. Crouse, I am one of your friends, and I stand by you.

Dr. L. S. Tenney:

Mr. President, Ladies and Gentlemen:—During the past twenty-five years this profession has been favored by Dr. Crouse, with many papers and discussions on the subject of the Dental Protective Association with which he has been so closely identified during that long period, but I believe that he never presented a paper which called our attention so forcibly and so clearly to the objects and work of this association as he has in the paper to which we have just listened.

There is one phase of the subject to which the essayist called our attention that is not generally recognized, particularly by the younger element of our profession, and that is that we are today enjoying freedom from patent abuses with its consequent annoyance, litigation, etc., which we would not enjoy were it not for the splendid work of the Dental Protective Association. In other words we are enjoying immunity from the persecution of patent claimants because of the activity of Dr. Crouse and the organization he so ably represents. You need not take any man's word for this if you do not wish to. If you wish to verify these statements you may turn to the records of the courts and there you will find that the statements of Dr. Crouse are all matters of legal history.

Dr. Crouse has dwelt rather freely on the subject of the Taggart inlay process, a matter which will not down, but arises again and again to perplex us and I want to tell you why in my opinion, it will not down. It is because injustice cannot triumph over justice and "No question is ever settled until it is settled right."

A few days ago I was informed by a member of our Program Committee that a number of gentlemen had remarked to him that they did not know just how I stood on this Taggart affair. Well, I did not know that there was anyone who cared very much how I stood, but if there happens to be such a man here tonight I am going to tell him. I have never expressed myself heretofore on this subject, except in private conversation, but tonight I am going to express myself before this society, and with the freedom of my convictions. If my opinion is regarded as of any value I want it known, not only here but to the whole profession through the medium of the journal in which these proceedings will be published, and I want to say that if I make any statements that reflect upon the profession please remember that I am one of you, that I am not free from guilt myself, and that I willingly bear my proportionate share of whatever reflects upon us all. I wish it were possible to accurately estimate the monetary value of the casting process to our profession. It is a very difficult thing to do, but I wish to call your attention to my own experience, to make an estimate from that, and leave you to judge for yourselves whether or not you consider me far out of the way in that estimate. You all know that after a man has practiced dentistry for some eight or ten years in a given community, his practice ordinarily becomes settled and stable. In my own case this was true to a remarkable degree, and after I had practiced for the length of time stated my practice did not vary from year to year more than a few hundred dollars, and had settled down to such a degree that I came to depend upon a certain income almost as surely as though I had been a commercial man with a fixed salary. In 1907 I noticed a marked increase in the proceeds of my practice. For a time I thought but little about it but after it had continued for a year I began to look around for its cause, and then I discovered that it was due entirely to the new method of operating. It was due to this for two reasons: First, because I could command larger fees for my cast than I could for my foil fillings, and second and more important because I found that I was inserting a very large number of inlays in positions which I had formerly used cheaper fillings, namely in frail and badly broken down teeth, and in cavities extremely difficult of access.

Now I am aware that in country practices, the increase from the casting method would probably not be as great as it has been in my case. On the other hand many men have informed me that their practice had increased still more than mine, but to keep well within the bounds of a reasonable estimate I find that if I take one-tenth of the amount my practice has increased and multiply it by the number of dentists in this country namely forty thousand, I arrive at an estimate of twelve millions of dollars annually which our profession is profiting as a result of the introduction of the Taggart inlay.

I wish to ask you now what have we given him in return for this rich harvest we are gathering? What has been our attitude toward this man who has thus enriched us? I do not hesitate to say that it has been one of absolute coldness and indifference, and that from the day of the introduction of this method up to the present moment we have, as a profession, ignored every just claim.

To deal thus with a man in the business world might possibly be expected. There men neither give nor expect to receive very much consideration. Fierce competition pervades it, and the vast business institutions that here surround us represent the survival of the strongest, but in dentistry we hold up a code of ethics as an evidence of the superiority of our methods over those of the man of business. When a business man invents or comes into the possession of some idea, some process, some means, by which he can gain advantage over his competitors, he seizes upon it and utilizes it and the world commends him for his genius, but when a dentist as a result of years of sacrifice and toil invents a process of incalculable benefit to us all and then asks us "What am I to receive as my compensation," we flaunt in his face a beautifully written document and we say, "Behold our code: Think of what you have done for humanity: This must be your compensation."

Gentlemen, during the twenty years that I have been in the practice of dentistry no man can say that I have ever wandered one inch from the straight path of professional ethics, but when I look about me and see such injustice as this, I sometimes pause and inquire: "What is this code that enables me to seize and appropriate the product of a man's toil and the product of a man's genius, and return him nothing but a few honeyed words of commendation!" This is not ethics. It is not justice. It is confiscation. If ethics means anything to me it means that we should treat with each other with honesty, with fairness, and with consideration nor can I understand that rule of conduct that says I may receive all and give nothing.

It has been said and it is probably true that had Dr. Taggart been a little more tactful, had he, before describing his process, have surrounded it with proper safeguards, had he seen to it that there were a large number of machines ready for the market he might have profited from the sale of them. Do men who make these statements recall that Dr. Taggart has always been a man of high professionalism; that from the earliest days of his practice he has been a constant attendant upon local, state and national meetings; that at those times he has contributed richly with papers, discussions and clinics? Do they recall that throughout his whole career he has taken an active part in whatever pertains to professional progress? Such is, in fact, the case, and I for one am generous enough to believe, his whole career justifies me in the belief, that the reason Dr. Taggart did not take the precautions men say he should have taken, was because he was imbued with that spirit of professionalism which blinded him to its necessity. He did not surround himself with means of protection because in his eagerness to do something for that profession for which he had already done so much, he overlooked it. He did not suppose that he had to protect himself from his friends. He belonged to a profession, and professional men have a code of ethics. Yes, men tell us that Dr. Taggart might have profited by his inventions had he been a little more tactful. Is this not a plain admission that our code of ethics is to be observed only when a man has us by the throat?

When this process first came out it was admitted by practically everyone that the profession owed Dr. Taggart something, and then what a farce did we see enacted? From every section of the country we heard the cry, "Why, yes we admit that we owe Dr. Taggart something, just tell us how much it is and we will pay it. We recognize our indebtedness to this man. All we want is to have the amount decided upon." Men begged our societies to come together and formulate some definite plan of action, but when at last there came the opportunity for which they had so long sought, when Crouse and his committee went to Taggart with a proposition, a proposition so small that it seems to me they would have turned from his door, ashamed to present it; when Crouse and his committee went to Taggart with a proposition and Taggart accepted it; and then when Crouse came to the profession and said "This troublesome matter is at last settled. All you have to do is to send twenty-five dollars, the magnificent sum of fifteen dollars to go to Dr. Taggart, for which you will have the right to use this process for seventeen years and probably all the rest of your life; and ten dollars to pay your membership fee in the Dental Protective Association, to encourage, strengthen and help to maintain an organization that has protected you for twenty-five years and stands ready to protect you all the rest of your life if you will give it your support." When Crouse came to the members of the profession with that proposition did you see them rise as one man to accept it? Did you see any wild stampede to see who could get to the treasury first? Turn to the books and there you will find your answer. Turn to the books and there you will find that out of the forty thousand dentists of this country whose hearts were bursting with gratitude and who were begging for an opportunity to reward their benefactor, four hundred have accepted and the other thirty-nine thousand six hundred still have their purses wrapped up in a code of ethics "for humanity's sake."

Gentlemen, if some individual who had no interest in this profession except a mercenary one, were to attempt to impose upon and exploit us, we would rise as one man and fight him to the bitter end, but to deal in this manner with a man who is one of us, who has always been one of us, and who has devoted some of the best efforts of his life to our interests, to deal in this manner with such a man seems like an outrage upon every sense of justice, and if at some future time some other dentist shall invent some other process of equal value to us, and if, looking over the history of this case, he shall decide that the only course for him to pursue is to utterly disregard ethics and surround his process with every safeguard known to the law, who is there in this room or in this profession who could criticise his action? What is to be the solution of this problem? I have none to offer. Men more competent than I have attempted to solve it and failed, but since Dr. Taggart, as dentists have told us, was so indiscreet as to read a paper before a dental society without taking precautions to protect himself against his own professional brethren; since he was so unwise, as dentists have told us, as to read a paper before a representative body of professional men without first making sure that the walls of some great factory were creaking and bursting under the combined weight of a thousand machines, in order that the moment he had finished, he might rush there quickly, hurriedly, before we could confiscate his ideas; since all this is true I see no solution of the problem except through recourse to the law, for as I said at the beginning, "No question is ever settled until it is settled right."

Dr. William Conrad, St. Louis, Missouri:

I feel myself utterly incompetent to discuss this paper intelligently. Dr. Crouse, in the formation of the Dental Protective Association, 22 years ago, and maintaining it up to the present time, has accomplished more than any other one man ever did in the dental profession in the world, and if any one should attempt to organize another protective association in order to protect the profession against injustice, unless they could reincarnate another Crouse, it would be a failure, because they could not do it, and I know because for twenty years or more I collected and handled every dollar collected in St. Louis, and we are lots more liberal than the other fellows. (Laughter.)

Dr. Pruyn said he came on the scene in the days of the rubber company. I came in on the tail of the rubber company, and claim to be an absolutely honest man, one who never stole anything, and never told a lie when the truth would take its place. (Laughter.) But the only thing that saved little Willie in the rubber case was the judicious use of the lie. Being galled, I worked at it day and night. And you are going to get into that lying business again if you do not build up the Dental Protective Association. What is the bill now pending before Congress going to do? Suppose it should be passed? God help you. You would not be worth stealing for the talent. There would not be anything left, and you know what that method of doing business in this country did. I think about two-thirds, maybe three-fourths or more of the active members of the profession today do not even know it as a tradition. They thought it was some of the fallacies in practice, but it was the real thing, and they chased you from town to town, making you comply with the Federal Law in regard to patents, and went so far as to place in your offices deputy marshals, who stood there like watch dogs, day and night, watching the work you were doing. God help you, if you have these men to contend with again. They will make you drag your books out and show all the fillings you have put in. I don't want any more of that. Josiah Bacon, from San Francisco, was the President of the organization. God bless the man that killed him. If you have never had one of these devils come into your office, I hope it may never occur to you. I think I have painted a picture of the rubber company in terms that are bad enough, so that we will now consider for a moment when we were first interviewed by the agents of the International Tooth Crown Company, because if it had not been for that company you would not know what a great and a good and honest man Dr. Crouse is. This company, as Dr. Crouse has said, together with the rubber company, collected from the dentists over fifty millions of dollars, and probably those who were connected with these companies did not like to see a cinch escape. They knew that dentists were easy-marks and easily scared. But the International Tooth Grown Company took all the methods of the rubber company and improved on them. They sent two or three agents who were good, loyal.

honest dentists, to the various meetings to demonstrate teeth and crowns to make specialists. They had lots of them. When they found they could not get very much through clinics, they went to work and organized classes at so much per. By the time they got through with several classes they knew pretty nearly what that community was worth. I went to Iowa City and never saw such a demoralized lot of dentists in my life. Some few had licenses, and they were considered the spies. There is no use in my elaborating on this dreadful story. They would go to a community, after they knew about what there was in it, and they would get the people scared sufficiently so that they would secure a certain number of dentists in that community for the conduct of their business, and before the agent left the town all the newspapers in the city and county knew what was going on. The same worthy gentleman, who in the thirties represented the distinguished but dead Josiah Bacon, was very anxious to get our money. He walked into my office one morning and said, "Is this Dr. Conrad?" I replied, "Oh, yes." I had never seen him before. He said, "I suppose you are making a lot of crowns and bridges," and I replied, "Certainly; I am an expert." (Laughter.) "Well," he said, "I represent the International Tooth Crown Company." After he made that remark I didn't feel so proud of what I had said. He said to me, "I know you are doing business, and we want a settlement." I asked him to wait a few minutes. I felt mad. I went back into my office, took one of my cards, and wrote on the back of it, "Dr. J. N. Crouse, 2231 Prairie Avenue, Chicago, Illinois, is my attorney. Get out." (Applause.) And he never bothered me since that time, which was about twenty-two years ago.

Gentlemen, don't I owe Dr. Crouse something? If you cannot do that much to make a man feel good for a few minutes, you ought to go straight down to hell and burn forever. (Laughter.) You have been told that one man offered Dr. Crouse one million dollars to betray us. He was so unscrupulous and unprincipled that he did not fear either man or the devil. I want all the dentists in the United States, not for our glory, not because we ask it, but to join the Dental Protective Association for the purpose of organizing the dental profession into such an association that it can defy anybody. Mr. James Campbell, one of the wealthiest men in our town, who was a friend of the Sheffields, used to ask me once in a while how we were getting along with this movement, and I said to him, that man Crouse has got them skinned to death and they are running. Do you know what Mr. Campbell said? He said, "No valid patent could ever stand that was opposed by the united sentiment of those who were to use the patented materials." That statement came from a business man. If it had not been for Dr. Crouse, do you know what would have happened? The International Tooth Crown Company would have been a perpetual organization.

Dr. Taggart has given the dental profession something that no other man was ever able to accomplish before. We have, you understand, just flitted around the margins of cavities and cast a great many things; we have cast aluminum with air pressure, but we did not have sense enough to do what the great brain of Taggart did. God bless him. In the treatment of teeth these gold inlays do more than all the medication that we ever applied before. The interproximal spaces get well when these methods are used. And with reference to the crown business, I think it is safe to say, I do not put on 25 per cent in a hundred of the crowns that I did two years ago, and I do lots more work and better work.

Some one in the discussion estimated the value of this inlay business to the profession. A short time ago Mrs. Sheffield had some trouble with her second husband. In a newspaper, which appeared about two months ago, she made the statement that the dentists of America were indebted to her to the extent of ten millions of dollars. That was only Sheffield's interest. (Laughter). I wonder how they estimated it? They certainly had years of experience in order to do it.

As to the casting process, if Dr. Taggart had been grasping, unprincipled, commercial-loving, a gold worshipping lover, bless your heart, he would have more fun than the other fellow. (Laughter.)

In conclusion, I want to repeat a sentiment which I reiterated at the meeting of the Missouri State Dental Society, namely, that we owe the king of inventors a debt of gratitude, a debt of honor, and not a crown of thorns. (Laughter.)

A thing that makes me so humiliated is the action of the various dental societies that have been in session since the spring, including the National, with their accusations and insults to Dr. Crouse and Dr. Taggart, but especially to Dr. Crouse. They have accused him of almost everything. They have accused him of living a life of ease upon the income and funds contributed by dentists to the Dental Protective Association, when I know to my own positive knowledge that no one on earth could have taken $120,000, all that was ever given, and continue the litigation as Dr. Crouse has done without spending time, and lots of it, as well as his own money. And to prove to you that he is an honest man, as well as a good and talented one, I have this to present. Here is a circular that was sent out in 1902 from Dr. Crouse's office from the Dental Protective Association, asking for ten dollars. This is the second beg. Here is a check (exhibiting) that I sent to Dr. Crouse in response to that circular, and here is a letter received by me from Dr. Crouse which will explain itself. "Your letter of September 1st, enclosing check for $10, is received. You have paid your assessment and the donation before this, and we are therefore returning the check, as we do not wish one man to do so much more than his share. Thanking you very much for your kindly spirit of co-operation, I remain, very truly yours, J. N. Crouse."

No trickster, no schemer, no dishonest man, and no thief ever was known to return a good check for $10 after he had once gotten his money. (Applause.)

Dr. Robin Adair, Atlanta, Georgia:

I did not expect to be called upon to talk on this subject, and yet I feel this is an opportunity that might be put to good advantage, if I can get you to understand the exact position of myself and many other southern dentists in regard to this particular subject.

My father was one of those who suffered worst from the persecutions of the rubber company, and when I read some of his old papers bearing on this matter, it makes my southern blood boil. My father was one of the first men to join the Dental Protective Association. He is still a member and always will be. His son, I think, is a member, but if not, he certainly will be.

In the south we reverence your inventor just as much as you do. I think Dr. Taggart has certainly done more for the dental profession than any other man in my time, and it is not my purpose to take one iota of glory from such a man. To be perfectly frank with you, when I came to this city I was asked to go and meet Dr. Taggart. I said I did not feel as though I could do so because I am on the other side; but I want to tell you that this opportunity given me tonight has afforded an excellent chance for investigating this subject. I had papers in my pocket from the Taggart Company of New York which I found on investigation Dr. Taggart was not responsible for. He was not responsible for this correspondence. I was not satisfied with that, and so I went from one man to the other, investigated, and found out that I with a good many other southern dentists had misunderstood Dr. Taggart to a large extent. And yet with all that, what I want to say is this, that probably the opposition to this movement comes more from the south than anywhere else. We have a little of the inlay business ourselves. The first suggestion of inlay came from S. W. Foster, of Atlanta, Georgia, and the first matrix inlays came from our southerner in North Carolina, Dr. Alexander; and yet, with all those things, we still know that the Taggart inlay is the best thing in practice, and while the sum of fifteen dollars, as some one has said, is very small, and we ought to be willing to give him more, yet there is another side to this question. For the sake of argument, and in order to get Dr. Crouse or whoever closes the discussion to answer, I would like to get further evidence in regard to this matter. I am willing to be corrected if wrong. You all seem to be on one side, and I do not like to hear a one-sided discussion. I hope what I shall say will be taken in a kindly spirit and answered not with mere sophistry or ridicule, but that I will have answers which will come out in your proceedings that will be of benefit to me and others who may also have been misled in regard to many things about Dr. Crouse and Dr. Taggart. Comparatively few dentists will come into the Dental Protective Association. What is going to become of all those who have not come in? What is to become of the majority of the profession if just a few come in? Is it right for a few of us to band together when the vast majority of men are not going to get protection from us as a dental profession?

I have claimed, and always will claim, irrespective of this and my views on anything else, that the science of dentistry has obtained its position at present simply because of its ethics in regard to process patents. Does Dr. Crouse think this patent will hold? If so, why? If other process patents have failed, why may not this one fail? What about the next patent? Every year some new thing comes out. Are we to be hampered next year if a man should come out with some method of putting in an inlay without casting and asks dentists thirty dollars for the process? The question is, is it right to establish a precedent? I am going to take advantage of the Taggart proposition. I think the amount of money stated is small; but is the precedent we set the most correct thing? Have you thought about it? I had not up to the present time, and up to the time I arrived here I did not think as favorably of it as I do tonight.

We talk about the benefits of the Taggart inlay. Did you ever happen to think of the great benefit which came from the process of vulcanization to humanity and to dentistry, which probably has been greater even than that of the Taggart inlay. Did you ever stop to think of crowns and bridges and other things we have put in the mouth that have been of great or even greater benefit than the Taggart inlay? And yet the speakers have been severe upon these very inventors. These are some of the points I want further information upon. Let us take, in your own city, the invention of the Murphy button for intestinal anastomosis. This button has been patented, but if it had been a patented process I have no doubt that Dr. Murphy could have made millions of dollars out of it. He invented this button, did not have it patented as a process and other surgeons are reaping the benefits of this invention. I simply mention this, not knowing what bearing it will have upon us. The questions I have asked are important and are worrying other dentists who are not so well informed as ourselves.

I want to close by saying that I have just finished a 20,000-mile trip through the principal cities of the West and Canada and everywhere I find the dentists look upon Chicago as the fountain head of modern dentistry and thought. I certainly have enjoyed meeting my old friends and meeting so many new ones.

DR. HART J. GOSLEE:

Unlike my eloquent friend, Dr. Adair, and my friend from St. Louis, Dr. Conrad, I am totally unprepared to discuss this subject, but I would not, however, overlook the opportunity of paying tribute to the splendid essay of the evening. Notwithstanding all the splendid work which has been done by Dr. Crouse throughout all these years, I think he has accomplished his masterpiece tonight. As I listened to Dr. Tenney in discussing this subject, I wondered what more could be said by any one. When I recall that I have not lost an opportunity at any time to say a few words upon this subject in explanation, in the first place, of my position in the matter, and in justice to Dr. Taggart, in the second place, I wondered again what I could say myself which would be an addition to what I have already said. While I would like to have the privilege of answering the questions asked by our southern friend, I would hardly presume to take it upon myself to do so when Dr. Taggart is present and when the essayist is to close the discussion. I would like to make an explanation of my own position in the matter. As most of you know, I was among the first to be shown the method of casting. Some of you know I was instrumental in having Dr. Taggart on the program of the New York Society to present this method for the first time. I took the position that I have occupied with considerable pleasure and gratification to myself since then immediately upon seeing the efforts accomplished by Dr. Taggart in casting. I grasped at once—if you will permit the apparent immodesty of the assertion—the possibilities of the work, and I am sure Dr. Taggart will bear me out, and in grasping these possibilities and its future usefulness, I said that Dr. Taggart has given us something for which he in return should receive something, and, gentlemen, if there is anything in ethics at all, it ought to be encompassed and embraced in the golden rule. I would feel, if I were not a member of the four hundred out of the forty thousand dentists, ashamed of myself. And why? Because I would not want to profit at some one else's expense, and if I use this method without contributing within my means to the gentleman who gave it to me, I would feel I was using it at his expense. And that is the sentiment I expressed at the beginning and following down to the present time, and that alone has prompted me to take the position I have wtih regard to the question of ethics and to this process.

I regard the question of copyrighting a book just as proper as the question of patenting a process or machine, yet we do not hear anyone criticise an author who copyrights his book. Why should we criticise a man who gives us a method by which we can do better work, by which we can do it easier, and by which, as Dr. Tenney has so beautifully shown us, we can make more money? If the 39,600 dentists continue to assume the attitude they do at the present time, what will be the effect upon the future? We will stultify the progress of dentistry, because we will not encourage advancement, and feeling that way about it, it is our duty, if we are honest with ourselves, to show Dr. Taggart that we want to see him get something for this process which has been such a great blessing and benefit to us. Those are the reasons I have to give you in explanation of the stand that I take in this matter. I have profited as much as any one single individual by adopting these methods, and by working them out and accomplishing my work, as I have been able to do with them, and I certainly would bow my head in shame did I not contribute in some measure to the inventor and lend some encouragement to the future.

DR. E. J. PERRY:

Dr. Conrad mentioned the murder of Josiah Bacon. I had the distinguished honor of having graduated from the Philadelphia College of Dentistry in '71, and my roommate was Dr. Samuel P. Chalfont, who afterwards located in California. Under the most provoking circumstances he accidentally discharged a pistol, the bullet going through the abdomen of Josiah Bacon, from which Bacon died. I take this occasion to remove the blot from the profession that Dr. Bacon was murdered. This accident worried Dr. Chalfont a great deal. He was subsequently pardoned.

While I am on my feet, I will say that once upon a time in my practice a very fascinating gentleman appeared in my office and said, "I am a deputy United States marshal." I replied, "You may live that down." (Laughter.) He said, "I represent the Goodyear Dental Vulcanite Company." He had me and I had to settle. I know they do these things. There are dentists in Chicago who paid as much as six hundred dollars a year. I know what Dr. Crouse has done and has been doing all these years, and if he is dishonorable he is different from any other member of his family. He is all right, and I hope the dental profession will join the Dental Protective Association in very large numbers, not only because it will make a strong organization to protect the profession, but it will compensate a man who has done more for it in the production of the cast inlay than any other man in it.

DR. HOFMANN:

I came to this meeting in a frame of mind very similar to that of the gentleman from the South who has expressed himself, and while I am not from Missouri, you have to show me. I have had a number of arguments with dentists and supply men in my office as to whether I should contribute this $15.00. I have always argued that we were indebted to Dr. Taggart, and that $15.00 from each dentist was a small consideration for what he has done for the profession; but it is the principle that is involved which has been brought up here tonight by the gentleman from the South, who has asked for more information as to whether or not we would not be attacked subsequently by others. I felt, when I joined the Dental Protective Association, I would be protected from all patents that might arise in the future, but since having things explained to me this evening, I view the matter in a different light, although I cannot say I am clear as to whether the principle which is involved is correct or not. I expect to send my check possibly tomorrow for the $15.00, yet, at the same time, I have some doubt in my mind whether we are setting a good example. I have spoken to other practitioners in my neighborhood and to lawyers about this matter, and the lawyers do not think very much of the validity of the patent. They do not think it will hold or be pronounced valid. It is not a matter of giving or contributing $15.00 to encourage Dr. Taggart in what he has done for the profession, which I feel we ought to do, but it is the principle involved. If Dr. Taggart should sell out to some corporation, there is a possibility that this patent would be attacked in a way that we do not realize now. Possibly Dr. Crouse has conceived the best plan for everybody concerned, and if it is put before the profession at large in the same light I have seen it tonight, they will all send in their checks within the next few days.

Dr. W. H. Taggart:

I came here this evening naturally to hear Dr. Crouse, and with no intention of saying anything unless my character should be attacked, and as you have all been very kind and have not said anything against me, I do not care to say much of anything except this: Possibly you all know that I have quit dentistry. I am not a dentist any more; I am a business man, and I am going to try to be as good a business man as I have tried to be a good dentist.

I think this controversy between you and Dr. Crouse is one that pertains to you as professional gentlemen, in which I am not interested. This is not a trial; this is not a court; and anything that you have to say against the proposition of Dr. Crouse, or in favor of it, has not one thing to do with the verdict of the court, and for that reason I feel like saying this, that Dr. Crouse has put before you a proposition that will be to your interest to accept. It is not to my interest to try and coax any of you to come in for $15.00, absolutely not.

Dr. Crouse (closing):

I made my arguments in my paper. I advanced the argument that there was no such a thing as a process patent under the patent law. Almost every patent has different steps. It is a process patent if it means that it has different steps to carry out the invention. What is the difference betwen a process patent and good patent? I have had that question put to me. I have answered it to the best of my ability, and I have even turned around and supported a process patent. There is a little story that goes with this. When the Crown Company commenced suit against Richmond and some others, they fixed the testimony. They had gone into collusion; they fooled the courts so that when the decision was made all the other patents would be infringements of Low bridge patents.

As to what we shall do by and by, as long as I am in the Dental Protective Association we shall take the same course. If a man comes up with a legitimate patent based on utility and newness, he will get a fair chance. If he comes up with a bogus patent, he will get what the other fellow got. We will do him. If we were to let the Dental Protective Association go to pieces or die out, you would be annoyed by all sorts of things that do not trouble you now.

As to the question of utility. I have contended that the Supreme Court, the Federal Court, would sustain Taggart's invention on the ground of its utility, just as was done with the vulcanization of rubber. The patent was largely granted on the ground of the utility of the invention itself, and I have said to Dr. Taggart, that if I were in his place, I would take out a utility patent. Why? Because the courts look favorably upon this kind of patent. If a man comes out and gives the community something that is useful, and especially if it is new, it catches them. They are impressed with its usefulness. They say, here is a thing that is helping the community, the country at large, and we ought to support it. The patent will be sustained on that ground.

I am not going to argue the ethics of patents, because this can be much better done by others. I am not going to discuss that phase of the subject here, except to say, I have no sympathy with a few medical men who believe that doctors and dentists should not have their inventions patented. The practice of medicine is not a thing that requires invention. In the practice of medicine you can use hypnotism, Christian Science, or any thing you can do to relieve the mind of the person who thinks he is sick, and needs a doctor, when he is not sick, which is true in a great majority of cases. This is not so with the practice of dentistry. There is not an easy spot in the practice of dentistry, at least I have never found anything that needed doing that was easy. I do not think the Taggart process is easy. I have worked hard at it. It is an improvement on the old methods of filling teeth, but it requires skill, and much painstaking effort to be done right. We have not done as much as we should do for him. But he has agreed to accept the proposition I have put before you and now it is up to the Dental Profession to do what is right.

There is one thing I wish to mention. At one time the Crown Company went to Boston and put keepers in the offices of a number of dentists. I received telegrams from these dentists to the effect that these keepers were in their offices and asking what they should do. Who could we get in Boston to take care of these cases? We named an attorney. In about four hours we received a message to telegraph a $45,000 bond and the keepers would be put out. This was done. I had to go to the Bank, put up security, and telegraph the bond. What would have happened if we had not had a Dental Protective Association.

When Dr. Taggart first showed his process to the profession at the meeting of the Illinois State Dental Society, he said, "I am going to depend upon the liberality of the profession," but so far he has received only small doses of liberality.

DR. W. H. TAGGART:

Dr. Crouse has said that it was the condition of my finances which, in a measure, forced me to accept their proposition. I feel that the principal reason which prompted me to accept their proposition was they felt safe in saying they could guarantee that they would have 15,000 dentists inside of six months, who would pay me this $15.00 and the Dental Protective Association $10.00. Instead of that number, about three hundred or more have come in. I would not have accepted the $15.00 proposition if I had not been offered a big sum of money.

Dr. C. N. Johnson:

Since this question has been opened up again, I feel I ought to say a few words and to emphasize one thing that has been made prominent here tonight. The charge has been made all over this country that this agreement was signed by collusion between Dr. Crouse and Dr. Taggart. You have had an illustration in the last few minutes of how these two men agree. (Laughter.) I want to tell you, in a public way, some of the experiences we had in bringing about that agreement and see if you think they are pleasant experiences. There was no collusion between Dr. Crouse and Dr. Taggart in signing that agreement. They were pulling against each other every minute as they have done tonight, and I never saw them come together when they did not, and it was my special privilege with that of Dr. Buckley to sit in conferences when these two men were quarreling like Comanche Indians over the agreement and the signing of it, and we finally had to keep them apart for three weeks at a time while the negotiations were going on. I make that statement to refute the charge that there was collusion between Dr. Crouse and Dr. Taggart. I would not go through that experience again for all the Taggart patents. I never went through a more painful experience with two of my personal friends, fighting every time they came together. That charge was made in the National Dental Association, and will be made in every organization where this matter is discussed, if the future is to be as the past has been, namely, that the agreement was signed by connivance between Dr. Crouse and Dr. Taggart. I want to go on record as saying that that was not true. It was the only agreement that both parties would agree to, and if that is not an equitable agreement to the dental profession, then I do not know what is. I will say further that it is the best agreement that the Dental Protective Association could have made with Dr. Taggart. He would not have made one iota of concession more than he did make, and he said to me, "I would rather die a pauper than to concede one other single point," and if that is not an equitable agreement, it is the best agreement that could have been made under the circumstances. Dr. Taggart today, I believe, in his inmost heart feels that it was not a just agreement to him. We were at least conscientious; I do not believe we made a mistake, and it seems to me the only solution of that difficult question.

I want to thank our courteous friend from the South for having raised legitimate questions here tonight. These questions must be answered. I want, at some future time, to say something about process patents. I differ with every one of the speakers on that. I differ with Dr. Crouse and with Dr. Taggart on process patents, but tonight is not the time to discuss this subject. Some time in the future I want to give expression to what I believe to be justice in a matter of that kind, but whatever may be justice as to process patents, the facts still remain that the patenting of processes is the law of our land today, and the Dental Protective Association is not bigger than the courts of the United States, and if there is one thing we want to take cognizance of in this country today, it is a respect for the law as it stands. If the law is not right, let us repeal it, and there is a certain law on our statutes that I would like to see repealed. But the law is there, and if the United States Government says such a thing is right, you and I must bow our heads to it if we are law-abiding citizens. If the law is not right, let us go at it to repeal it in a different way, and I hope the day will come when that law will be repealed.

Dr. John P. Buckley:

I rise simply to say one thing which Dr. Johnson did not say. Everything he has said relative to the two men whom we successfully kept apart at the right time, I said on the floor of the National Dental Association, and my discussion will be printed soon in the *Dental Cosmos*. But, as he has said, these men fought every time they came together, and I am certain that they would not have agreed, had it not been for Dr. Johnson and myself, and others outside of the Board who were consulted in the matter. While we could make no guarantee, we did say to Dr. Taggart that if he was reasonable and fair and would put the sum at fifteen dollars, so that it would not be a hardship on the men in the country who are not making four or five thousand dollars a year, but who are making perhaps only from fifteen hundred to two thousand dollars a year, we felt certain that in six months we would have at least fifteen thousand of the forty thousand dentists in the United States in the Dental Protective Association. I think we would have had that number now were it not for a misunderstanding, so many of the younger men in the profession knew nothing of the Dental Protective Association; and if this paper does not do anything else than clear up in the minds of men like Dr. Adair and Dr. Hoffman, it will have accomplished a great deal. As Dr. Johnson has remarked, these gentlemen have a right to ask questions, and after they have come here and listened to this paper and believe now that we were justified in what we did, if they will go home and think the matter over and tell others we did the best we could for the dental profession, under the circumstances, this paper will have accomplished its purpose. Had the profession known more about the work of the Association in the past, I believe we would have made good our tentative promise to Dr. Taggart. We told him we could not absolutely guarantee that number; but we gave him our honest opinion to that effect.

It was stated here tonight that only about 400 have thus far accepted the terms of the agreement, and that the other 39,600 are standing on their dignity and hiding behind a code of ethics. There are many good reasons why only about 400 have sent in the required amount of money. In the first place not all of the 40,000 dentists of the United States by any means know much if anything about the agreement, because the circular has not yet been sent to the dentists in every state, and while the circular was published in the Journals, many paid no attention to it, even if they read it, thinking it a matter of no interest to them. Again many who read the circular hesitated because, as was stated in the paper, they have come into the profession at a time when patent litigation was practically at a standstill, and, therefore, know very little if anything about the Dental Protective Association. Surely these would not want to join without investigating the matter. They have felt that there was no immediate hurry, have not investigated and consequently have not accepted the terms. There are many who did read the circular who thought the Association was organized to fight all patents, and believing thus felt that the officers had no right to compromise. These men are mistaken as Dr. Crouse has shown tonight by quoting from the circular issued in June, 1889. A few, and I believe only a few, after sober thought and due consideration will probably still persist in a contest and want to fight. The Dental Protective Association will have no hand in this, it will be a matter between them and Dr. Taggart.

Let me say that no matter what stand the Board of Directors might have taken in this matter, they could not have hoped to escape all criticism. We realized this and did what we believed to be right and the only honorable thing to do under the circumstances; therefore, we must stand the criticism. Personally I find consolation in what Herbert Kaufmann says: "To escape criticism in this life one must walk the road of obscurity."

This whole proposition is so different from anything that has arisen in the past, and is so complex, that it is difficult to understand and know what is best to do. As a member of the Board of Directors, I sincerely hope that all members of the profession, after considering the matter carefully, will see the justice of our actions in effecting this agreement, and will join the Association, thus settling this complex problem peacefully and well.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science,

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

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EDITORIAL.

PATENTS AND PATENT LITIGATION.

In this issue of the DENTAL REVIEW will be found a paper by Dr. J. N. Crouse, read before the Chicago Dental Society, which should be carefully studied by every dentist in the United States. The great work accomplished by the Dental Protective Association since its organization should commend itself to every practitioner, and an earnest effort should be made to keep an organization of this kind in existence. The prevention of abuses such as that of collecting royalties from dentists on worthless patents has saved the profession millions of dollars, and in the future the profession will need protection, as it has in the past.

Some criticism has been made of the officers of the Association on account of a compromise agreement made with Dr. W. H. Taggart, whereby members of the Association may secure the privilege of using the Taggart method of casting for the lifetime of his patent at a nominal cost. The argument is used that the function of the Protective Association was to contest all patents, and not to recognize any, but this is a wholly mistaken point of view. Dr. Crouse has shown by quoting from the second circular sent out by the Association when it was first organized, that the purpose of the Association was to protect its members against fraudulent and worthless patents, and not to deprive any man of his legitimate rights. The Protective Association is not larger than the United States patent laws, nor was it organized to fight all patents, good, bad or indifferent. That would not only be the height of folly but it would be wrong in principle.

When Dr. Taggart obtained his patent and started suit to establish its validity, Dr. Crouse was importuned, as President of the Dental Protective Association, to enter into the defense. This he declined to do on the ground that he thought Dr. Taggart was entitled to some compensation for his invention because of its revolutionary and far-reaching effects on modern dental practice. Not only this, but he believed that the validity of the patent would be sustained in court, although of course no one can predict what the decision of a court will be in a patent case. Dr. Crouse's conviction in this matter was strengthened by an examination of the records in the case under litigation, and a certain circumstance connected with some of the evidence presented was of such a character as to lend force to his conviction. It was this apparent likelihood of Dr. Taggart winning which induced Dr. Crouse to enter negotiations to protect the members of the Dental Protective Association against extortion in case the validity of the patent was sustained. If the patent was sustained and Dr. Taggart should decide to sell his rights to anyone outside the profession, there was practically no limit to the amount which would be exacted for the privilege of using the process, because it is recognized that nearly every dentist in practice is employing the method. The agreement with the Protective Association is such that every member may secure the right to use the process for the lifetime of the patent for a very nominal sum, and we feel sure that when the profession understands fully all the facts in the case there will be very little complaint as to the equity and justice of the agreement. It should be remembered that through no other agency than the Protective Association could an agreement so favorable to the dental profession have been made. Dr. Crouse, on account of his familiarity with the subject of patents as they effect the profession, was the one man capable of suggesting an amicable agreement which would at the same time be fair to the profession and bring a recompense to Dr. Taggart.

THE THIRD AUSTRALIAN DENTAL CONGRESS.

Beginning July 8, 1912, a Congress will be held at Brisbane, Australia, known as the Third Australian Dental Congress. The two previous Congresses in Australia were marked by much enthusiasm, and a great deal of good scientific work was accomplished.

The profession in that part of the world is advancing with rapid strides and it is safe to predict that the coming Congress at Brisbane will eclipse all former efforts. The officers and various committees are making great preparations and the prospects are good for a record-breaking attendance. The program of essays and clinics is well under way, and the officers, feeling that the success of the meeting is assured, are extending to the dentists of the world a most cordial invitation to attend. A trip to Australia at that time of year is very pleasant, and it is the hope of the profession over there that dentists may come from different countries and join with them in making the meeting a memorable one. The president is Dr. E. T. White, and the honorable secretaries are Drs. Arnold E. Gibson and A. R. Walker, all of Brisbane. Either of these gentlemen will be glad to furnish any information regarding the Congress, and those who decide to attend the meeting may be assured of a most cordial welcome.

THE EDITOR'S DESK.

TOURING IN BETSEY'S HALF-SISTER.

[Continued from the October Dental Review.]

II.

The morning of the second day out was still most delightful, with no signs of Don's rain. But we did not make a very long run that forenoon, owing to some of the "peculiarities" of Brom's car. Ever since we left Chicago it had been full of freaky moods and Brom had tinkered with it till he was well-nigh out of patience. For this reason we always kept Brom's car between the two other cars, and finally as we neared Defiance, Ohio, the car seemed to take on the spirit of the name and defied Brom to make it move. Don accordingly towed Brom into Defiance while Mrs. Brom rode with us in "Sister." Here, also, we found a fine garage and an expert repair man, but by the time the car was fixed it was near dinner time and we accordingly had our noonday meal at the Crosby House. After dinner we sailed away in high feather, but about four miles out Brom was again in trouble, and this time he absolutely laid down on the proposition. "This is the limit," said he. "You go on and I'll get her back to Defiance somehow, and take the train for Cleveland." "Not much, you won't," I replied. "I will tow your car back to Defiance, where you may leave it, and then put you and Mrs. Brom in our car and we will all go to Cleveland together." Which arrangement proved so delightful that I afterward confided to Brom that I had designedly "queered" his magneto for the express purpose of gaining the companionship of him and his charming wife. It was really the pleasantest part of the trip after that, and even with all of our delays we managed to make Fremont for the night.

After supper George hunted up a moving picture show and took us all in. Moving pictures were George's great delight and we always had trouble in getting him past one. The next morning we were up bright and early and made a nice run to Norwalk for breakfast. And here we encountered one of the very finest hotels on the route. It is called the Avalon Hotel and the manner in which it is conducted is worthy of especial comment. Aside from the splendid building and equipment the employes all seemed anxious to show us every courtesy, as much so as if we had been guests at a private home. The whole air of the place attracted me so that I began to enquire into the management, and I found that it was conducted by Mr. F. W. Watson, whose idea of running a hotel is typified in the following "code" which he keeps posted for his employes to read, and which other hotel managers would do well to copy:

THE AVALON HOTEL CODE.

Hotel Avalon is operated primarily for the benefit and convenience of its guests.

Without guests there would be no Hotel Avalon; these are facts easily understood.

So then it behooves every man and woman employed here to remember this always, and to treat all guests with courtesy and careful consideration.

Any member of our force who lacks the intelligence to interpret the feeling of good will that the Avalon holds towards its guests, cannot stay here very long.

New customers are just as valuable to us as old ones, remember that; for each new customer is an old customer in making.

See that you do your part to make him want to come back here with his family and his friends.

Impress upon him the fine goodfellowship of the place; the "no trouble to help you" spirit.

Never be perky, pungent or fresh. The guest pays your salary as well as mine; he is your immediate benefactor.

Snap judgments of men are oftentimes faulty. A man may wear a red necktie, a green vest and tan shoes, and still be a gentleman.

The unpretentious man with the soft voice may possess the wealth of Croesus.

The stranger in cowhide boots, broad brim and rusty black, may be president of a railroad or a senator from over the ridge.

You cannot afford to be superior or sullen with any patron of this house. I said so.

Have every one feel that, for his money, we want to give him more sincere service than he ever before received at any hotel.

The employe who helps to perpetuate this plan is never out of a job, nor does he escape the eye of the man behind the scenes—the boss.

At rare intervals some perverse member of our force disagrees with a guest as to the rightness of this or that.

He maintains that the meat is well done when the guest says it isn't; or that this sauce was ordered when the guest says the other; or that the boy did go up to the room; or that no party called; or that it was a room reserved and not dinner for six; or that the trunk wasn't there. Either may be right. But these are permanent instructions:

No employe of this hotel is allowed the privilege of arguing any point with a guest.

He must adjust the matter at once to the guest's satisfaction or call his superior to adjust it. Wrangling has no place in Hotel Avalon.

Each member of our force is valuable only in proportion to his ability to serve our guests. F. W. WATSON.

Why cannot every hotel proprietor realize that it is only upon such lines as these that permanent success is to be attained? In fact, in every walk of life, whether professional or commercial, the key-note of success is that of loving service. Mr. Watson sees further than the outside of things, his vision extends to the internal workings of human nature and the result is unmistakable the moment you step into his hotel. When the business world shall have become regenerated we shall see good and beneficent things done for the love of doing them, we shall see mutual help and encouragement from the boss to the bootblack, we shall see an interest taken in the welfare of others, and the man who is selfish or lacking in consideration for the point of view of his fellowman will no more fit into the scheme of things than does the churlish employe fit into the present plan of conducting the Avalon Hotel. Here's to Mr. F. W. Watson—may his tribe increase.

From Norwalk we had a most pleasant run into Cleveland, arriving there shortly after noon, and then began a round of greetings among members of the profession who had already arrived, which was surely good for the heart of man. What a joy it is to take by the hand, and look into the eyes of, the stalwarts of the profession! It is like the reunion of a happy family. I have repeatedly said that I believed there was more genuine goodfellowship in the dental profession than among any other body of men, and I am more than ever convinced of this fact.

After I had landed my party and run "Sister" around to the garage, the first man I met in the hotel corridor was my good friend, Dr. C. S. Butler of Buffalo, looking spick and span and smiling as usual, while I was weather beaten and traveled stained after the 400-mile trip.

"They said I wouldn't know you," he exclaimed, " but you are looking fine."

"Wait till I slip up to my room and doff this suit and jump into a bath and dress," said I, "and then you can see what I look like."

Brom had kindly registered for me and secured two splendid rooms for my family and self, so that we were delightfully comfortable, and while on the subject let me record here that every member of the party outdid himself to look after our comfort. If it wasn't Brom, it was George, or Don, or Billy Boy, or the girls who were doing us some little kindness, and as I look back over it now I am convinced that it would be difficult to duplicate that crowd. From beginning to end our companionship was most congenial and delightful.

When I appeared in the corridor again Dr. Butler turned me around, looked me over and said: "You don't mean to tell me that you ran your own car all the way from Chicago?" "Every mile," I answered, "and it has made a new man of me."

From this to the end of the meeting it was one round of greeting, and to me it was a most delightful occasion. I was among so many good friends, and then, I had my family with me. I have always found that if I go away on a trip and every member of the family is not with me there is something missing. How helpless a man becomes when he forms the habit of relying on other people. And I often think how hopelessly alone in the world he is if he is not relying on some one.

Brom had received word from Defiance that his car was in fine shape, so he was to go back that way and run her home, but as before stated Don and I had planned to go on into Canada. So one morning we started from Cleveland to tour to Buffalo, and George, the indispensable, could not resist the lure of the road and went as far as Buffalo with us. We had a wonderful run that day with only one setback. In going up a bad hill Don, who was ahead, encountered another car stuck in the middle of the road. The driver of the other car shouted to Billy to pass him on the left. In attempting to do this Don's car slid into the ditch with both left wheels sunk to the hubs in mire and quicksand.

It was a hopeless looking sight, and Don had good reason for the frame of mind which Billy tersely described later as "Dad tearing his hair and dancing around on that hillside." Instantly—apparently from nowhere—appeared a farmer and team of horses. with the laconic remark: "This isn't the first; I'm pulling 'em up this hill most of the time."

"IT WAS A HOPELESS LOOKING SIGHT."

But I had other plans for Don. Unloading my party, I blocked "Sister" in front of Don's car and attached a tow rope. "You won't pull him out of that in a month of Sundays," was the encouraging comment of the farmer. But "pride goeth before a fall," and the farmer "bit the dust" that time. "Sister" quietly landed Billy and the car at the top of the hill, and then to my astonishment, Billy informed me that his brakes had stuck and he had been unable to fully release them! Which, in the language of Bret Harte, "as I have frequent remarked," was "some pull." Neither car seemed any the worse, but I had occasion to hear from that pull later on, as the future will show. And yet I should gladly do the same thing over again under the same circumstances, and be thankful I was there with "Sister" to help. I needed help later myself, and I got it in the most whole souled manner.

We ran from Cleveland to Buffalo in one day—about 200 miles—which, considering our delay on the hill, was not bad running. And it was a most glorious trip, with beautiful scenery, through grape vineyards the most extensive we had ever seen, many pretty towns, and, best of all for the motorist, good roads. George was riding beside me in front and my three girls in the tonneau. I was running at least thirty miles an hour, and it seemed as if the girls were unusually quiet. Of course I could not take my eyes off the road to look back a single instant going at that speed, and so I said to George, "I wish you would just see if I have all my girls with me yet." "Yes," he said, "they are all there and all sound asleep." And I said, "Bless their hearts, they do enjoy motoring; the only trouble is that they are a bit nervous running at this rate of speed."

But the Indian girl afterwards declared that she was not asleep at all—just had her eyes closed. She takes that from me—I have often claimed the same thing while sitting through a long sermon.

(*To be continued.*)

CORRESPONDENCE.

Philadelphia, Sept. 16, 1911.

To the Editor of the DENTAL REVIEW:

Dear Sir: I have read with much interest the paper by Dr. G. V. Black and the discussion thereon in the September issue of the DENTAL REVIEW. The results which Dr. Black reports from the use of sterile isotonic salt solutions in the aseptic treatment of wounds without the use of chemical antiseptics are most suggestive and interesting and the statements which he makes with regard to the poisonous character of strong solutions of sodium chlorid appear to me to be of the utmost importance.

I do not remember to have seen any report heretofore published of the necrotic effects produced by strong salt solutions upon living tissues and it seems to me that in that possibility, as reported by Dr. Black, we may have the clue to a dangerous factor in the use of certain local anesthetic preparations in which necrosis of the soft tissues may possibly be brought about by the high specific gravity of solutions employed quite apart from any dynamic toxic effect of the drugs used in the antiseptic solution.

It has long been known and is strongly emphasized by those who have made a most careful study of local anesthetic technique that all solutions used for intracellular injection should be made isotonic with the blood plasma. Experience has shown that when this rule is observed the most satisfactory results in the production of local anesthesia are obtained. In the discussion of Dr. Black's paper Dr. Buckley is reported at page 919 as saying: "In quantitative analysis in chemistry you can make a normal solution of anything by taking the weight of the molecule of the substance expressed in grams and dissolve that in a liter of water." If Dr. Buckley's statement is accurately reported he is in error with regard to his use of the phrase "normal solution" in connection with the physiological salt solution under discussion by Dr. Black. Moreover his statement as to what constitutes a normal solution in quantitative analysis is only partially correct.

A normal solution, as that phrase is used in connection with quantitative analysis, is a solution in which a weight of the substance equivalent to one gram of hydrogen is dissolved in a liter of water. Therefore Dr. Buckley's statement is correct only in so far as it applies to normal solutions of monobasic acids or the salts of monobasic acids. For in the case of dibasic acids, in which there are two hydrogen atoms, and in the neutral salts of which acids the hydrogen atoms are replaced either by monacid bases or by bases having a double hydrogen equivalent it is necessary, in making a normal solution of such acids and their salts, to take a quantity in grams equal to one-half of the molecular weight of the substance and dissolve that in a liter of water in order to produce a normal solution. Correspondingly, in the case of tribasic acids and their salts, one-third of the molecular weight of the substance expressed in grams must be dissolved in one liter of water to make a normal solution.

Dr. Black states that the physiological salt solution must be not less than .5 nor more than .8 per cent in strength and he recommends that the solution be made of .6 per cent. These percentages expressed as absolute weights per liter of water would be:

5 grams or 77.16 grains of salt per liter as the minimum;
8 grams or 123.456 grains per liter as the maximum; and
6 grams or 92.592 grains per liter as the most desirable strength.

Whereas a normal salt solution made according to the rule quoted from Dr. Buckley, that is, taking a quantity in grams equal to the molecular weight of the compound would be as follows:

Atomic weight sodium	22.88
Atomic weight chlorin	35.118
Molecular weight	58.06

This quantity in grams equals 895.981 grains, which, if dissolved in a liter of water would be more than seven times stronger than Dr. Black's maximum strength solution, and therefore poisonous to the tissues.

The difficulty appears to be in the indiscriminating use of the word "normal" in conection with these solutions. It is true that both the solutions of Dr. Black and the one referred to by Dr. Buckley are, strictly speaking, normal solutions, because both conform to a norm or standard, but in the chemical case cited by Dr. Buckley the norm is the equivalent of one gram of hydrogen per liter of water, whereas the norm of the solutions referred to by Dr. Black is the specific gravity of the blood plasma. A distinction should then be made in referring to the latter by designating the normal physiological salt solution as an isotonic solution, the word "normal" without qualification being insufficient and therefore inaccurate, and as may be readily seen from the showing made by Dr. Black as to the dangerous character of high percentage salt solutions when used in connection with wounds or for subcuteneous injection, they may lead to necrotic destruction of the tissue and are therefore dangerous. Very truly yours,

EDWARD C. KIRK.

PRACTICAL HINTS.

EDITED BY J. E. SCHAEFFER, D. D. S.

(This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaeffer, THE DENTAL REVIEW, 55 State Street, Chicago, Ill.)

To Mend Broken Plaster:—Have a jar of sandarach about as thick as cream. Coat the two parts, then hold them in the Bunsen flame and while the alcohol is burning clamp them together. This is the only method I have ever found that is absolutely certain.—*G. E. Hawkins, D. D. S., Chicago.*

Care of the Linen:—When your dental towels come from the laundry, of course they are clean, but there is an odor which is not quite pleasing to the discriminating patient. If you will keep a reserve stock of some delicately perfumed toilet soap in the receptacle with the linen they will come forth for use in a condition very pleasing to both yourself and the patient.—*C. E. Allen, Chicago.*

Cutting Off Anterior Teeth:—In cutting off incisors or cuspids preparatory to mounting a porcelain crown, notch them first at the gingival margin with a knife-edged carborundum stone, and follow this with a sharp crosscut burr. In this way any tooth may be cut off in a few second, and there is no jar or shock as when the excising forceps are used for the same purpose; also there is no danger of shattering the root.—*Arthur S. Smith, D. M. D., Peoria, Ill.*

Enlarge Opening When Filling Pulp Canals:—A very common mistake is made in trying to fill pulp canals in bicuspids and molars through too small an opening, which is almost sure to result, in many cases, in imperfect root canal fillings. It is far better to sacrifice the crown of the tooth or some portion of it than it is to take chances of losing the whole tooth. Well filled root canals means the saving of the foundation. The crown can always be restored either with a filling, inlay or an artificial crown.—*J. Austin Dunn, D. D. S.*

Failures in Casting:—A very important factor in successful casting is the use of a proper sprue. The sprues generally used are too thick, leaving such a large opening through which that part of the gold which is first melted may be forced, by its own gravity, before the whole button is melted, causing the closing up of the avenue by which the gold enters the mold, making the casting a failure. Use for sprues, wire 16 to 18 gauge, or an ordinary hair pin cut in right lengths. If using base with large opening, fill with wax and force sprue to place.—*Emil A. Anderson, Chicago.*

Applying Devitalizing Fibre to an Exposed Pulp:—If pulp is inflamed, apply "Oil of Joy." (What's that? Equal parts eugenol, pure phenol and oil of cinnamon.) This will stop the worst tooth ache from exposed pulp instantly. Cover gently and let it remain twenty-four hours. Fill cavity with *white* temporary stopping, then make hole in stopping to pulp exposure. Apply your devitalizing fibre and seal with *pink* temporary stopping. You see the trick? The pink stopping tells you at a glance what you did the last time, see?—*James W. Cormany, D. D. S., Mount Carroll, Ill.*

Inlay Abutments:—There are at present a great many inlays being used as abutments and piers in bridge work, and a word of warning seems appropriate at this time. All inlays serving this purpose should have large areas of surface bearing on the anchor teeth, and all enamel walls unsupported by strong, healthy dentin must be either well protected by the inlay or removed entirely. Large compound cavities in molars and bicuspids may be relied upon for anchorage in judiciously selected cases without pins, but as a rule all inlays serving in this capacity should have supplemental pin anchorage or its equivalent; and when limited to the simpler cavities one or more good strong pins are indispensable to adequate strength.—*F. E. Roach, D. D. S., Chicago.*

Mounting the Wax Model:—It is an important step to place the wax model at the proper distance from the end of the ring. (It requires greater pressure to force the gases through a half inch of investing material than it does through a quarter of an inch.) If we always set the wax model a definite distance from the end of the ring we can soon tell just what pressure is necessary to force the gold to place, the larger the inlay the greater the pressure required. To make a guide which will enable you to do this, cut a piece of sheet brass long enough to extend across the end of the ring and in the center allow a projection to extend down one-quarter of an inch. Arrange a screw in the bottom of the sprue-holder or hold the wire in position with wax and raise the model until it just touches the tip of this projection.—*Arthur E. Peck, D. D. S., Minneapolis.*

Occlusion Plus Articulation: No. 6:—In arranging artificial teeth we must keep in mind the influence that the movements of the mandible has on the position of the teeth. If the teeth of a human skull are examined, we find that a buccal view of them presents a curved arrangement from before backwards. When viewed from their occlusal surfaces, we note a decided inclination of the lower molars in an inward direction. If an arc of a circle be struck up with its center somewhere in the median line, it will intersect the buccal and lingual cusps of the teeth on either side. This double curved arrangement compensates for the downward and forward movements of the mandible and must be understood in arranging the teeth anatomically. The placing of the teeth can be simplified by preparing the wax rims of the base plates. They should be modified from flat planes to curved surfaces until contact is maintained between them, when the mandible is protruded or moved laterally.—*J. E. S.*

Manipulation of Wax in Cast Crowns:—One thing has set me thinking and that is concerning the manipulation of the wax between the end of the root and crown so as to get perfect adaptation of the wax to both of these and at the same time retain the pin in its proper position. In addition to this, the crown is to be placed in its proper alignment. I have tried to do this and found considerable difficulty on account of these details as well as the moisture from the gums interfering with the adaptation of the wax. I have attempted to overcome this difficulty by adapting a thin piece of metal over the end of the root and attaching it to the pin and burnishing it thoroughly to the root end. To this plate of metal and the end of the crown the wax can later be adapted. In this way I got more accurate adaptation than with the wax alone, especially in those cases where two or more crowns approximated each other. In case of crowns on the first and second bicuspids, it would be impossible to construct them at the same time, which affords a greater opportunity for a better result than when making them individually.—*W. D. N. Moore, D. D. S., Chicago.*

MEMORANDA.

VIENNA DENTAL SOCIETY.

This society will celebrate its fiftieth anniversary Nov. 14 and 15, 1911.

G. V. BLACK DENTAL CLUB.

The G. V. Black Dental Club will hold a mid-winter clinic in St. Paul during February, 1912. Definite dates will be given in next issue of this magazine. Dr. R. B. Wilson, Secretary, American National Bank Bldg., St. Paul, Minn.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

List of officers for the year: President, T. E. Turner, D. D. S., St. Louis, Mo. Vice-presidents, for the West, J. H. Wallace, D. D. S., Omaha, Neb.; for the East, Edgar A. Honey, D. D. S., Kalamazoo, Mich.; for the South, John P. Stiff, D. D. S., Fredericksburg, Va. Secretary-Treasurer, T. A. Broadbent, M. S. D. D. S., 15 E. Washington St., Chicago, Ill.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Indiana State Board of Dental Examiners will be held in the Capitol, Indianapolis, beginning Monday, Jan. 8, 1912, and continuing four days. All applicants for registration in the state will be examined at this time. No other meeting will be held until June, 1912. For further information, apply to the Secretary, F. R. Henshaw, 507-8 Pythian Bldg., Indianapolis, Ind.

INSTITUTE OF DENTAL PEDAGOGICS.

The next annual meeting of the Institute of Dental Pedagogics will be held in Chicago, January 24, 25 and 26, 1912. (Notice change of dates.) The officers and committeemen have arranged a program that will be of unusual interest to every dental teacher. In addition to the excellent papers and instructive exhibits, one day has been set apart for the inspection of the Chicago schools, where all departments will be in operation. A detailed program will be given in the next issue of this journal. Fred W. Gethro, Secretary.

QUOTATION FROM THE NEW DENTAL LAW OF NEW JERSEY.

Applicant shall present to said Board a certificate from the superintendent of public instruction of this state, showing that before entering a dental college he or she had obtained an academic education consisting of a four-year-course of study in an approved public or private high school, or the equivalent thereof.

This law was signed April 11, 1911, and goes into effect Jan. 1, 1914.

This will require matriculants of 1911 to comply with the above section of the law as to preliminary requirements if they desire to take the examination of the Dental Examining Board in New Jersey. Charles A. Meeker, D. D. S., Secretary, 29 Fulton St., Newark, N. J.

OHIO STATE DENTAL SOCIETY.

The forty-sixth annual meeting of the Ohio State Dental Society will be held in Columbus, Dec. 5, 6 and 7, 1911, at the Southern Hotel. The following program, while not stating the exact titles, indicates the subject matter of the various papers: Dr. A. O. Ross, Columbus, president, "Most Frequent Causes of Mortality Among Dentists Compared with Other Professions, and Their Prevention; Dr. H. T. Smith, Cincinnati, "Germicides in Dentistry"; Dr. F. W. Gethro, Chicago, "Cavity Preparation for Fillings and Inlays"; Dr. H. Prinz, St. Louis, "Local Anesthetics in Dentistry"; Dr. C. R. Turner, Philadelphia, "Artistic Dental Prosthesis"; Dr. J. K. Douglas, Sandusky, "Cast Gold Inlays vs. Gold Fillings"; Dr. Henry Barnes, Cleveland, "Sweated Gold vs. Cast Gold Inlays"; Dr. L. E. Custer, Dayton, "Porcelain Inlays vs. Silicate Cement Fillings." This splendid program of papers, with the usual large list of clinics, should contain something of interest to every member of the profession. Much more commodious quarters have been arranged for the sessions of the society, insuring ample room for all. All reputable dentists are cordially invited. F. R. Chapman, Secretary.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois, will be held at the Illinois University College of Dentistry, Honore and Harrison streets, beginning Monday, Dec. 11, 1911, at 9 a. m. The following preliminary qualifications shall be required of candidates to entitle them to examination by this Board for a license to practice dentistry in the State of Illinois: Graduates of a reputable dental or medical school or college, or dental department of a reptuable university, who enter the school or college as freshmen on or after the school year 1906-7, must have a minimum preliminary education of not less than graduation from an accredited high school, or a certificate from the state superintendent of public instruction, equivalent officer or deputy, acting within his proper or legal jurisdiction, showing that the applicant had an education equal to that obtained in an accredited high school; which certificate shall be accepted in lieu of a high school diploma. Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications accompanied with the fees must be filed with the secretary at least five days prior to date of examination. The examination fee is $20, with additional fees of $5 for license, and $1 for registration certificate. Address all communications to T. A. Broadbent, Secretary, 705 Venetian Building.

RECENT PATENTS OF INTEREST TO DENTISTS.

993,006. Tooth brush, Henry Weinstein, Cleveland, Ohio.

993,629. Tooth brush, John J. Witman, Reading, Pa.

994,213. Denture, Samuel G. Supplee, East Orange, N. J.

994,225. Apparatus for casting dental fillings, Franklin N. Wetherby, Milwaukee, Wis.

994,829. Guard for dental grinding tools, Byron M. Fell, Doylestown, Pa.

994,895. Making dental plates, George S. Whittaker, Gloversville, N. Y.

995,616. Dental plate swager, William T. Lyon, Portland, Ore.

995,626. Magazine tooth brush, Hilarion Horan, Fall River, Mass.

996,030. Root forceps, Charles H. Parker, Los Angeles, Cal.

996,075. Dental apparatus, Charles G. Garretson, Knoxville, Iowa.

996,502. Tooth, Melvin E. Merker, New York, N. Y.

996,113. Device for the removal of artificial post tooth crowns, William H. Mosely, Toronto, Ontario, Canada.

996,921. Artificial tooth crown, Hart J. Goslee, Chicago, Ill.

996,818. Device for tooth restoration, Frederick S. Walden, New York, N. Y.

997,402. Tooth brush holder, John A. McGrath, Hancock, Mich.

997,472. Artificial tooth cusp, Thomas Steele, Columbus, Ohio.

997,965. Revolving cabinet, Leon H. Cobb, Brockton, Mass.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

DENTAL COLLEGE COMMENCEMENTS.

NEW YORK COLLEGE OF DENTAL AND ORAL SURGERY.

Graduates: A. A. Alexander, O. E. Areskog, E. J. Barbe, G. A. Boll, M. A. Bonnefond, G. Burger, R. H. Clark, D. D. S., W. F. Fanslowe, A. B., S. L. Fass, B. Firkser, P. S. Gurevitch, D. D. S., B. Katz, P. A. Le Blanc, S. A. Longenecker, J. C. Lyke, J. J. Martin, F. Nagle, P. E. Paschke, E. B. Riblet, S. A. Rodgers, R. A. Rose, C. W. Rubsam, S. S. Sahlin, M. Scheidlinger, K. P. Scheiner, D. D. S., W. G. Schiff, W. C. Sinnigen, R. J. Steedman, W. C. Terry, H. M. Throop, J R. Weissman, I. S. Wechsler, M. D., E. A. Westfehling, C. Wolf.

THE

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PRESIDENT'S ADDRESS.*

BY W. M. COOPER, D. D. S., FRANKFURT-ON-THE-MAIN, GERMANY.

Members of The American Dental Society of Europe:

Gentlemen—In opening the regular session of the thirty-eighth annual meeting of this society, I first desire to thank you, with true sincerity, for the honor you have conferred upon me by electing me your president. My only misgiving is in my inability to fulfill the high office, and I trust you will be patient with my many shortcomings, begging you to help me where my inexperience is at fault.

We give you all a hearty welcome and trust our American and Continental friends will feel at home among us; hoping you will take part in our discussion, and give us the benefit of your knowledge and experience.

It is with sincere regret that I report the absence of one of our old and active members, Dr. William Mitchell is not with us today, owing to a very sad and trying illness. I am sure all present will unite with me in wishing him a speedy recovery.

This is to us a very important and unusual meeting, for your committee elected in Paris have rendered their report, and the changes in our constitution will come up for discussion. It is desirable that all members remain for the business meeting and take part in the debate.

Many of our regular attending members have sent their regrets at not being able to attend. Being a summer meeting, other duties and obligations have called them elsewhere. America, the home of our science, has claimed many.

It is fifteen years since our society met in this beautiful city, and for a July meeting a more ideal place could not have been selected.

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*Read before the American Dental Society of Europe, July, 1911.

It is a fitting coincidence that our meeting occurs at the same time and place as the International Exhibition of Hygiene, for our profession bears the closest possible relation to public hygiene. But it is a question if we as dentists think enough of hygiene as applied to ourselves.

Think of the conditions under which most of us practice our profession. Our clinics, as a rule, are on the north side of the building, where all sunlight so far as possible is excluded. And as a successful practice is so confining during daylight hours we have small opportunity to make use of nature's greatest agents of hygiene, sunshine and fresh air, unless we make and follow some hard and fast rule for outdoor exercise. Moreover, our exercise should be such that for the time we forget our patients and ourselves. The busy dentist needs both mental and physical relaxation; or, if you like, call it counter irritation, so that his fagged faculties may revive and be better fitted for his vocation.

There are some men of a scientific turn of mind, who can use to advantage man's natural exercise—walking—for having an interest in botany, geology, or some like nature study, they get the mental change and relaxation that is necessary; but to most of us a walk just for sake of a walk, is a bore, and a bored man is never benefited. Therefore, for the majority, some sport or game is necessary.

Some here will say they have no time for sport, and do not need exercise. One of my friends often said he did not need recreation, but he has had good reason to change his mind, and is now in England playing golf to get in condition for his winter work. It is the experience of everyone who has given it a trial, that a reasonable amount of time devoted to sport raises his standard of work, both as to quality and quantity. For by keeping the mind and body keen and fit we are better able to meet the exacting demands of our profession. And that it is exacting no one here will deny.

The theory that physical exercise is a direct benefit to mind and body is not a new idea by any means. As far back as 367 B. C., Plato himself a fine gymnast, preached the gospel of exercise; and ever since our literature has been crowded by new fads and fancies of home gymnastics, the chief virtue of which is the price we have to pay for the secrets of the so-called system. Anyone can develop a five or ten-minute routine for himself, and benefit by it. Home training is very good, indeed, if taken in conjunction with outdoor sport, but as a rule the only men who will stick to the monotonous humdrum of dumb-bells and chest weights long enough to derive a benefit, are the nervous, high strung individuals who need outdoor exercise most.

We cannot hope to keep ourselves absolutely physically fit, for if we did, there would not be time enough left to practice our profession.

What we want is that degree of physical condition that will enable us to live and work most intensely. It is efficiency we should aim at, not perfection. The question for us is not: How much exercise will bring good results. That is a theoretical, not a practical consideration. The real question is : How much exercise will it take to keep us on the top level of efficiency? We cannot even strike an average, for the average man does not exist. What will keep one man fit will make another stale, while a third would be simply loafing. Each should, by trial, form his own standard as to the amount of exercise he requires, and by comparing himself with himself, decide what is best; not taking as a standard of strength the lazy hereditary giant, who can walk into the "gym" and handle the hundred-pound bells with more ease and grace than we can manage those of twenty.

It is certain that a man cannot think and act energetically unless his nerves and muscles are in good working order. Muscles that are never used get soft and flabby; they become incapable of obeying the will promptly and effectively. The effects on the nerves that control them are equally bad. They lose their power of ready response and cannot be counted upon to do expert work. The successful dentist must be in that condition of physical fitness that willing and doing are instantaneous.

Now if we are willing to admit we do need exercise, the next point is, what shall it be? Riding, boating, golf, shooting and tennis all offer fine opportunities. Each should select that which interests him most and circumstances have placed most readily to hand. After the selection is made, go into the game to win. Learn to excel and thereby, forgetting your practice, you will get mental relief, that is as essential as the bodily exertion.

The best forms of exercise will call the big muscles into play, the muscles that do the work. This gives bulk effects and reaches the whole system.

In my own case shooting and golf give me what I need. Both exercise the arms, legs, back, chest and abdomen. These are the muscles most tried by the long, hard hours over the dental chair and therefore are the ones to be exercised. But you say that is all very well, how about time? It is simply this. For years it has been my practice to leave my office Friday evening not to return until Monday morning. You may think you cannot afford a whole day. Try it and see. Take first a half day and it will not be long until you have a whole one. A few patients will complain at first, but they will also be the first to object if later on they hear that for some good reason you have been obliged to work on your Saturday.

As to the financial side, you will find the quality and quantity of your work is such that your bank balance will tally with former years.

In this age of advanced and strenuous commercialism, much is heard of the preservation of natural resources. As the only natural resource of the practitioner of dentistry is his own good health, my last words are: Get out into the open, out into the fresh air and the sunshine, and practice as well as preach hygiene.

THE INTERNATIONAL EXHIBITION OF HYGIENE AND ITS SIGNIFICANCE FOR DENTISTRY.*

BY N. S. JENKINS, D. D. S., LOSCHWITZ-DRESDEN.

The history of hygiene is inseparable from the history of civilization. Even in the prehistoric ages the necessity for hygiene existed, for we find the bones of the cave man blotched and deformed by osteo-arthritis such as we now justly attribute to insanitary dwellings; and doubtless even then efforts were made, by means of heat, or decoctions of plants, or through sorcery, to find relief from suffering.

But, like the systems of hygiene to which they gave rise, civilizations have been slowly evolved and originally only in lands especially favored by climate and geographical position. They had many features in common, for they appeared in tropical, or semi-tropical lands, where they were comparatively isolated and protected by deserts, or seas, or chains of great mountains, from invasion. Egypt, India, Greece, Rome, Mexico and Peru are all familiar examples. That the North American Indian was inacpable of evolving for himself a civilization resembling that of his Aztec or Peruvian brethren, may be explained by the fact that nowhere in the broad lands over which he roamed was there a dearth of game to force him to depend upon agriculture for nourishment, or great natural boundaries to serve as protection against attack.

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*Read before the American Dental Society of Europe at Dresden, July 28th, 1911.

It is easy to understand that, where conditions especially favored agriculture, and some peace-loving tribe made a beginning in accumulating a surplus of goods, the absence of natural defences would invite attack from some nomadic tribe, who would utterly destroy this slight beginning of acquisition, upon the development of which all civilizations, and the consequent establishment of hygienic laws, have been founded.

Ancient Egypt furnishes a striking example of the development of a high civilization and a practical system of hygiene by a concentrated population in a prescribed area. The periodic overflow of the Nile led naturally to a system of irrigation, which increased and rendered regular a source of food supply and suggested the advantage of drainage. The irreclaimable desert prevented the easy approach of dangerous foes, except from the side of Asia, and the growth of wealth formed the essential basis for the development of classes, among whom the more gifted, in order to retain the wealth and power their superiority had given them, found it necessary to care for the welfare of the masses. Not only did this remarkable people develop their own religion, philosophy and art, but they cultivated medicine thousands of years before the Christian era, and in every way profoundly influenced the civilizations which followed them. The disciples of Aesculapius, Hippocrates and all the schools of Greek and Roman medicine reflected their teachings, but the most striking instance of their advance in hygiene is to be found in the law of Moses, who, versed in all the learning of the Egyptians, gave to Israel its elaborate hygienic code. Such commands as those for cleanliness in houses, raiment and person, the forbidding of unwholesome foods, the fasts, the Sabbath rest, the isolation of those who had even the appearance of being afflicted with infectious diseases, etc., indicate the existence of a system of advanced social hygiene among those who were the teachers of Moses. As also the sanitary laws of Mahomet were the direct offshoot of Judaism, it is therefore with no undue stretch of the imagination that we see in the Moslem making today his ablutions before proclaiming the one God and his Prophet, the image of the ancient Egyptian priest purifying himself to celebrate the worship of the sun god, Ra.

We must not, however, conclude, remarkable as has been the survival of some of the conquests of the past, that "through the ages one unceasing purpose runs." The survivals have been accidental, partial and perverted, and what the world has lost, it has deserved to lose. For all the civilizations which have hitherto risen and fallen have been founded, not upon the rights of all, but upon the privileges of the few.

The great Hebrew poet sings:

> "When I consider thy heavens, the work of thy fingers,
> The moon and the stars, which thou hast ordained;
> What is man that thou art mindful of him?
> And the son of man, that thou visitest him?
> For thou hast made him a little lower than the angels,
> And hast crowned him with glory and honor.
> Thou madest him to have dominion over the works of thy hands;
> Thou hast put all things under his feet;
> All sheep and oxen,
> Yea, and the beasts of the field;
> The fowl of the air, and the fish of the sea,
> And whatsoever passeth through the paths of the seas."

And our own Shakespeare writes:

> "What a piece of work is man! how noble in reason! how infinite in Faculty! in form and moving how express and admirable! in action how like an angel! in apprehension how like a God!"

These words express the exalted mood in which we contemplate the glorious mind and the magnificent achievements of man; but in the midst of our admiration we are suddenly admonished that this noble image has feet of clay. He creates pure systems of religion and schools of philosophy; he builds great cities, with "cloud-capped towers and gorgeous palaces;" he founds world-wide empires and binds them together with just and beneficent laws; he makes art triumphant in the life of a people, until the sense of beauty becomes the heritage of all; he worships the goddess Hygeia, until whole nations become strong and enduring, and he fondly believes that his work shall stand forever. But, at last, folly and selfishness, ignorance and passion, "rank corruption mining all within," or barbaric hordes storming from without, overthrow altars, and thrones and laws in everlasting ruin. Where is Memphis and Babylon and Troy! Where is the Greek phalanx and the Roman legion?

With the fall of the Roman Empire and the triumph of barbarian invasion, began the long period of tumult which we term the Middle Ages, when every man's hand was against his neighbor. Instead of schools of medicine and hospitals, men built castles for defense against treacherous attack, or to provide places of refuge for bandits. Almost the only career left to the studious mind was in the bosom of the church, which generally discouraged research in the natural sciences. Instead of training the body to strength and health and beauty, the church taught the mortification of the flesh and "froze the genial current of the soul." The people lived in conditions of indescribable filth, and plague and pestilence raged uncontrolled, being often regarded, even unto our day, as judgments sent by an angry God as punishment for sin.

But the light finally broke in Italy in the Renaissance and was gradually extended into other countries until, at last, medical science won new standing ground.

Already in the sixteenth century the reform in the study of anatomy began, and in the seventeenth century the discovery of Harvey was the first step toward modern physiology. Partly through the increase of popular knowledge and partly through the growing spirit of philanthropy, there was, in the eighteenth century, marked advance in hygiene, culminating in the reform of English prisons through the labors of Howard and in the immortal discovery of Jenner. It was, however, in the first half of the nineteenth century that a serious attempt to establish hygiene upon a scientific basis was undertaken. It was England who led the way, urged on by the awful devastation caused by the cholera epidemic of 1831-1832, and by the extraordinary development of British industries, through which masses of workmen were concentrated in the towns; and, one would fain believe, also by the spirit of brotherly kindness and the principle of giving to all men equal laws and fair play, for which the English people have been so distinguished.

With characteristic good sense, they began by gathering statistics of mortality and the prevalence of diseases; already in 1836 establishing the celebrated Registrar General of Health. One royal commission after another was formed. The Public Health Acts passed in 1848; a central board of health was established, and this was followed by the founding of local boards of health.

France also, from the early part of the last century, distinguished herself by the action of the government in establishing various councils, conventions and committees for hygienic purposes, and private Frenchmen contributed much to the literature of hygiene.

Only after the foundation of the empire could Germany, as a nation, accomplish her part in the development of general hygiene, although the foundation for her widespread and beneficent achievement in our time was laid long ago in German character and education.

All this, and vastly more, this great exhibition teaches us. It gives, for the first time in the history of the world, a comprehensive view of what hygiene has been and is, and presents a glorious vision of what it yet may be. For only in our time has a *science* of hygiene existed. All that went before, admirable as much of it was, had its foundations in empiricism.

It was bacteriology, which, born of the researches of Pasteur and Koch, and nursed by their followers into vigorous life, revealed to mankind the first rational theory of disease and explained the mystery of putrefaction and decay, as well as the important constructive office of micro-organisms. Those amazing discoveries showed the way to the conquest of disease and made the already great work of the physician, the chemist, the sociologist and the sanitary engineer at once vastly more intelligent and sure, and formed all the various sciences engaged in this noble undertaking into a new combination, which may now be rightly called the Science of Hygiene.

This science owes its rapid advancement to certain fortunate, but seemingly indispensable conditions.

Firstly; to the untiring labors of cultivated minds devoted to study and research and counting nothing so precious as truth.

Secondly; to the growth of respect and sympathy and of willingness to co-operate for the public good, between laymen and scientists; a condition which a considerable period of general education could alone supply and which it is one of the chief objects of this exhibition to encourage and advance.

Thirdly; to a long season of European peace, during which there has been opportunity for great industrial development and for the study of its attendant problems without having the best energies of the nations exhausted by destructive war.

This exhibition teaches us that hygiene aims, not only at the ultimate extinction of disease, but also at "rendering growth more perfect, decay less rapid, life more vigorous, death more remote;" and that in the pursuit of these aims, it must lay under tribute all the activities of mankind. It must concern itself not only with the education of children, with the housing of the people, with the occupation of laborers, with the healthfulness of foods, with insurance against accident, sickness and destitute old age, with the management of hospitals and laboratories, with the drainage and water supply of cities, with the suppression of vice and with the general uplifting of the masses in civilized lands; but it must also extend its researches into the habits and diseases of uncivilized peoples, and care even for the welfare of animals. What a prodigious program of high and beneficent service! What a privilege to take any part in a crusade so noble and destined to such certain victory!

The part of Dentistry in this world-wide campaign is of great importance. Nothing in the whole exhibition is of more significance. Dental diseases have been the most universal of all maladies and, until the rise of modern dentistry, they were generally regarded as hopelessly beyond prevention or cure, and the disablement, deformity and misery, direct and indirect, which they have caused have been incalculably great. This exhibition shows Dentistry in its technical and scientific progress, and marks the beginning of its public usefulness. It was essential that we should first pass through a period which was largely technical in character; a period which became rich in brilliant and useful results; but later our scientific progress, especially since the rise of bacteriology, attained greater development and began to teach us the true meaning and promise of our profession. We saw at last that dentistry could no longer be regarded as simply an affair of the repair and substitution of the teeth, but that its wider province was to concern itself with all the diseases originating or being harbored in the mouth, a province which would afford an unlimited field for research and practice.

Then, when we were convinced of the intimate relation of oral hygiene to the common weal, we began to obtain the statistics which could enable us to show the necessity for action and commenced the public agitation, already so fruitful in results, in demanding dental treatment for the army and navy and the establishment of school dental clinics. A single decade has established the corps of dental surgeons as commissioned officers in the American army and has already founded a large number of communal school dental clinics in Germany, with the hopeful prospect that this system will eventually become universal throughout the Empire. This is, however, but the beginning of the colossal work before us.

However completely we may be convinced that, by the establishment of universal oral hygiene, we can reduce or entirely stamp out many of the diseases which afflict mankind, we must still possess our souls in patience at the slow progress of new ideas against the inertia of ignorance and indifference among the masses, and even among ourselves, and continue to work unceasingly until we have achieved our purpose. It will be no slight task to educate a generation of dentists in anything like the enormous number which public exigencies will certainly require, and to give them the broad and thorough training which their duties will demand. They must work by the side of those who have already created aseptic surgery, chained typhoid and annihilated yellow fever; and, if they are to limit dental caries, outlaw pyorrhea, and do their part in subduing measles, scarlet fever, tonsilitis, diphtheria, tuberculosis, rheumatism, pneumonia and disorders of the digestive tract, they must be the equals of their colleagues in professional equipment and in their devotion to humanity.

Humanity! This is the keynote to which this International Exhibition of Hygiene is attuned. As the inevitable tragedy occurs, we still chant the mournful words of Job: "Man that is born of woman is of few days and full of trouble;" but all through the ages there has been the lurking belief that the blessings of this life, such as they are, belong to all the children of men, a belief destined to come to fruition only in these later days. Priests have brought the consolation of religion and poets have dreamed of the golden age, but the awful conditions of human misery have been but fitfully and slowly relieved. In our own time, however, the deliberation with which nature has hitherto worked, and against which impatient souls in all ages have revolted, seems to be exchanged for generous haste. The marvelous inventions and discoveries with which we are deluged, by their very number, and still more by their character, indicate that they are meant for the service of all and that every great achievement, material or moral, oversteps the boundaries of nationality and race and fulfills its purpose only when it has brought its blessing unto all mankind.

In this great work we, who represent the most distinctive and original contribution which America has made to medicine, are morally bound, especially as the descendants of those who first proclaimed the right of all men to "life, liberty and the pursuit of happiness," to play well our part. May we be inspired to yet more generous effort by the recent expression, on the part of the American president and the American people, of the determination that between us and our British brethren, and, if it may be, between us and all other nations, there shall be war no more.

THE PRESENT STATUS OF THE GOLD INLAY*.

BY S. J. KNOWLES, D.D.S., CHICAGO.

The subject given to me, that of the Gold Inlay, is one that has been written upon during the past ten years by men of reputation all over the world, and I naturally feel somewhat embarrassed in trying to write about something so well known.

Personally, I am very much interested in Gold Inlay work, for I have worked in it for the past eleven years. At this time, I want to refer in a brief way to some of the men, who as pioneers, inaugurated this radical treatment of filling teeth.

Such men as Dr. J. A. Swasey and Dr. W. V. B. Ames deserve lasting praise for the work they have done in this line, for today, in the mouths of many of their patients, some of us see gold inlays made many years ago, that are still doing a wonderful service, even though some were very crudely made.

Then we pass on to April, 1907, when our friend Dr. W. H. Taggart gave the Chicago Odontographic Society, and the world, a new and more satisfactory way of making cast gold inlays. This process consisted of reproducing a wax inlay into gold, of any karat; in fact any fusible metal, barring the one metal pure platinum. This new process was the result of several years of study and experimenting.

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*Read before the Illinois State Dental Society May, 1911.

Until this process was given to the profession, gold inlays were made by burnishing either a gold or platinum matrix to a cavity and filling the matrix with fused gold plate or gold solder, in the many different ways of doing so. This matrix process was a more or less uncertain way to make good fitting inlays, as the difficulty of perfectly adapting the matrix to all parts of a cavity, made it practically impossible in many cases. The close adaptation of an inlay to all parts of a cavity is a very important factor and is much more readily done by the casting process than by any matrix method.

I believe at times, we all lose sight of what a debt we owe this man for what he has done for us, for upon reflection, think of what we would do if this wonderful process was suddenly taken from us, and we did not have it to use. So I take it upon myself at this time to pay this fellow member, brother and dental genius, the compliment of having given to me, and I believe to all of us, a way in which to practice a better standard of Dentistry than we ever did do, or could have done without it. This I am sure echoes the sentiment of the majority present and certainly those who make gold inlays.

Eleven years ago this May, I made my first gold and porcelain inlays and since that time, have gradually worked to a point where today the majority of the fillings I make are inlays. It is agreed by all that we have no ideal filling material, so we are called upon to use a combination of materials that will approach as near as possible the ideal. In referring to the different filling materials, we find weak and strong points that influence us in choosing what may be in our individual minds the best and nearest to the ideal.

Until the advent of porcelain and gold inlays, gold foil, the different alloys of silver, cement and gutta-percha, were all we had to choose from, each of which had its advantages and disadvantages. Gold foil was considered by far the most permanent and satisfactory of any material we had. The disadvantage, however, of long tedious sittings necessary and incidental to filling large cavities with gold foil was a decided objection, especially as the strain on both patient and operator was so great; then the difficulty of perfect adaptation to all parts of an inaccessible cavity, rendered it of uncertain value, for unless it was absolutely perfect, there was sure to be leakage and ultimately certain caries, as any imperfection at the margin might easily allow caries to extend to the dentine at once.

Cement as a filling embodies more advantages than any of the other materials, with the one great disadvantage, that of loss and waste of bulk, which condemns it as a permanent filling, especially in positions requiring contour and contact points. I would like to refer, however, in passing, to recently seeing two cement fillings that were placed in the lower incisors of a Chicago dentist in 1886, the cement showing little or no wear at all. I only speak of this to show what may be done with cement under some circumstances.

The theory of an inlay with the cement joint is one discussed pro and con with arguments on each side. It is as true that the gold foil filling may be argued for and against, but one of the problems we are daily confronted with, is that of restoring lost tooth structure, resulting from caries, and the question arises; what is the nearest to the ideal for the particular case in hand? There are many things to be considered in deciding this question: First, the temperament of the patient. Second, condition and position of the tooth, size of cavity, etc. Third, age of patient, and many other points I need not mention. In my hands I find the requirements are met in a majority of cases with an inlay, and notwithstanding its "weak joint of cement." The cement joint according to my practical observation of several years, is not a weak point, but a strong one. However, I have talked to some who in their judgment and through their years of observation, thought the cement joint a weak point. In answer to this, I would like to ask if it is not possible (assuming, of course, the inlay was perfectly fitted) that the cement, in cases of failure, was not well mixed, for I have several sections of teeth, amputated for different reasons with inlays in position, a cross section showing a perfect condition of cement under the inlays. We have all seen failures with inlays, but what fillings do we have that do not fail and are ideal with all things considered? I am of the firm belief that a perfectly fitted gold or porcelain inlay set in place with a good mix of cement is as near to the ideal filling as anything we have at present.

I also believe we are all able to do more extensive and permanent operations with an inlay than we would by subjecting our patients teeth to hours of malleting and subsequent polishing of gold foil fillings. I know it is possible for me to make permanent fillings by the inlay method, that I could not otherwise do, and I claim to have a fair amount of skill in making gold foil fillings. It is also possible to adopt a systematic technique in the making of inlays that will save a great deal of time for our patients and ourselves since we may delegate a great bulk of the work to the laboratory, the process of which I shall describe in a general way.

My Own Modus Operandi is as follows: The cavity is prepared with carborundum stones and burs, all of which are kept wet with water thrown freely from a bulb syringe operated by an assistant, using the ejector to carry off the surplus water and saliva. The water keeps the heat of a rapidly revolving instrument down to a minimum, naturally saving the patient a great deal of unnecessary pain, and my experience is, that stones, providing they are mounted true, cut very rapidly and are much smoother running than steel burs. When the cavity has been prepared, instead of modelling and carving the wax in the tooth, in a majority of cases, I am more successful in taking an impression of the cavity itself with Detroit Perfection Modelling Compound softened with dry heat; a bite is then taken with any modelling compound to serve when poured with plaster of paris as a guide for contour and occlusion. The impression and bites are placed in the laboratory where with several other impressions and bites they may be worked on by an assistant or one's self at a convenient time. The impression of perfection compound is imbedded in plaster of paris to support the impression, so it may be filled with Oxy-Phosphate of Zinc Cement, and will make a very perfect reproduction of the cavity in tooth if properly handled and will allow the carving and shaping of wax inlay with occlusal grooves, etc. more perfectly than, is ordinarily possible in the mouth. The occlusion is regulated by the plaster bite, made from modelling compound. The advantage claimed by taking impressions is that, personally, I am able to get more perfect results and with less time spent on the patient at the chair, for this part of the work may be delegated to your own laboratory, where your mechanic is able to do practically all the work, giving you more time at the chair on work of greater importance, with the fact borne in mind that the work is always under your personal supervision.

SOME CONCLUSIONS GROWING OUT OF A STUDY OF THE CAUSE OF DENTAL CARIES.*

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Mr. President, Members of the Illinois State Dental Society:

Ladies and Gentlemen—I deem it a special privilege and a great honor to have the opportunity of presenting a paper before this society. The field from which I bring this paper is but partially explored and I, perhaps, owe you an apology for attempting to present a premature thesis upon a class of work as yet unfinished. But it is hoped that I may cause some discussion of the laboratory and clinical observations offered and thereby stimulate more than passing interest in this very pertinent phase of our preventative practice.

In science it is the exact truth which is demanded, and nothing short of it. Nor is this requisite less imperative in bacteriology than in the other sciences. Whatever is hypothetical is branded as theory, and must carry that stigma until it becomes a demonstrated fact. The substance of this paper, perhaps, may bear such an unsatisfactory designation, even though some efforts have prevailed to bring it into a better and more substantial classification than the brand "theory" usually indicates.

No aspect of our daily attention upon the infirmities of our kind seems to call for such diligent and earnest efforts as does caries of the teeth. I therefore believe that I am justified in drawing your attention briefly, as others have in more able attempts, to our present understanding of dental caries and oral hygiene, and to the possibilities of applying preventative means following a better knowledge of the causes of so prevalent a disease. Since the chief source of injury by caries, through which our patients suffer, will, we hope, be shown to be the retention of carbohydrates and their subsequent fermentation by inorganic and organic enzymes in the mouth, it must logically follow that any plan whereby the fermentable foods or the factors producing fermentation are removed, will be conducive of health, and free us, for the most part, from such destructive changes.

As this paper will have much to do with the factors which induce carious conditions of our teeth, in order that a rational means of application be devised in our prophylactic measures, it might be well for me to take up their discussion. I shall begin by referring to those foods of a fermentable nature, and to forces—both physical and chemical—which change carbohydrates into assimilative foods, as well as to the products growing out of these changes.

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*Read before the Illinois State Dental Society May, 1911.

Foods are classified into three general divisions. We have only to deal with the carbohydrates, as they by direct change constitute the pabulum upon which bacteria subsist, subsequently producing the destructive agent with which we are concerned in this paper. I shall refrain from burdening you with the changes which other foods undergo, but shall take up for consideration only the forms of carbohydrates which, in their process of fermentative splitting, form agents we now believe injurious to tooth structure.

The carbohydrates are also chemically divided into three chief groups, namely, monosaccharides, disaccharides and polysaccharides, all of which are found in several familiar substances.

The monosaccharides are the direct, isomeric or stereoisomeric aldehydes or ketones of the corresponding alcohols. They occur ready formed in nature, and have also been prepared synthetically.

The monosaccharides most interesting to us in this connection, are the hexoses, $C_6H_{12}O_6$; dextrose, mannose, galactose, and levulose, which are the first oxidation products of the stereoisomeric hexatomic alcohols; sorbite, mannite and dulcite. The latter have the following constitution: $CH_2, OH. (CH.OH)_4\ CH_2OH$. Dextrose, mannose, and galactose are the respective aldehydes of these alcohols, $CH_2. OH. (CH.OH)_4. CHO$; levulose is the ketone of mannite, $CH_2. OH(CH\ OH)_3. CO. CH_2OH$.

The disaccharides are anhydric compounds of two molecules of monosaccharides, e. g., $2C_6H_{12}O_6 = C_{12}H_{22}O_{11} + H_2O$. On boiling with dilute mineral acids, they break up with the absorption of water into monosaccharides. The most important members of this group are saccharose (cane sugar), lactose (milk sugar), and maltose (malt sugar), all having the formula $C_{12}H_{22}O_{11}$.

The polysaccharides $n(C_6H_{10}O_5)$, like the disaccharides, are regarded as anhydrides of the monosaccharides, but they have their origin in the union of many molecules of the latter and have a high molecular weight, which varies widely.

The polysaccharides have no sweetish taste and for the most part are amorphous. Some are soluble in water, others swell up in water, while still other members of this series are not visibly changed by water. By various means, all of them can be transformed by absorption of water into monosaccharides.

The polysaccharides are divided into three chief groups: starches, gums and cellulose.

1. The starches are not directly fermentable and do not reduce alkaline copper solutions. To these belong:

(a) Vegetable starches (amylum). These are found in many plant cells laid down in the form of microscopic, round or oblong granules, which have an organic structure and are insoluble in cold water. On heating with water they swell up at 50°, burst and partially dissolve, forming a slimy solution known as starch paste. The soluble part is called starch granulose, the insoluble part starch cellulose. On boiling with dilute acids, starch is changed first into dextrin and later into dextrose. By digestion with saliva or pancreatic juice, or through the influence of malt-diastase, it is split into dextrin and maltose.

All of these forms of carbohydrates undergo a process of hydrolysation and fermentation in the mouth; the products of this great chemical change form the basis for our discussion in this paper.

Miller believed that the fermentation of such forms of carbohydrates as the mono- di- and poly-saccharides by organic enzymes caused caries by the ultimate production of lactic acid. This was in substance his hypothesis.

In view of the tendency of some of our modern scientists to look lightly upon the work of Miller, and his conclusions as to the cause of dental caries, and in spite of the fact that some are dissatisfied with the deductions made in determining the exciting cause of caries, and since Miller has gone and can no longer defend his hypothesis, I trust that you will pardon my temerity in attempting to build a paper around a seeming paradox. I believe that I am justified in erecting this work upon the most logical foundation yet offered concerning the cause of the most prevalent of dental disorders, although partially persuaded, sometimes, to view differently the lactic acid theory as the cause of carious tooth structure.

My conversion to the Miller theory of the cause of dental caries came about early in my professional life. My discipleship was not made until I had found that other theories advanced in answer to the question, "What is the cause of dental caries?" were not near so logical as was Miller's. And even at the present time, when men are becoming quite familiar with biological phenomena and are offering such deductions as the mucic acid theory and many others, I am still constrained, in view of this enlightened age, to accept Miller's theory, even though no one had ever quite found the products of fermentation, as he suggested we might.

Miller's hypothesis was prepared from analogous chemical changes then known to take place in bacterial action upon carbohydrates. His views in this special field first found lodgement in a speculative mind and upon this structure was built his hypothesis. This procedure does not differ from the conclusions formed in nearly all the sciences, especially when the problem underlying the science is in a state of minutia. An hypothesis or theory is prepared and means are then brought to bear to either disprove or substantiate the theory.

Saliva induces the first great chemical change in the products we are to discuss, therefore some consideration of this substance might here be properly made. Saliva is secreted by the three pairs of large salivary glands located in the neighborhood of the buccal cavity and opening into it by their several ducts, and also by small glands imbedded in the mucous membrane of the mouth.

The product has a varying constitution, according to the gland by which it is formed, and on the basis of the characteristic properties of their secretions the salivary glands may be divided into two chief groups. One group, called albuminous glands, produce a thin, watery secretion, which contains only proteids, salts, and in certain cases, diastatic enzyme. Here belong the parotid glands of all mammals, the submaxillary of the rabbit, some of the glands in the nose and tongue and the lachrymal glands. The other group, the mucous glands, secrete a more or less viscid fluid, which contains mucin as its characteristic ingredient, besides salts and small quantities of proteid. This group includes the submaxillary glands (with few exceptions), the sublingual part of the buccal glands, those in the mucous membrane of the pharynx, the larynx, trachea and oesophagus. There are also mixed glands, e. g., the submaxillary of man, in which a part of the gland conforms to one of these types, and a part to the other.

The mixed saliva of man is a colorless or light-bluish, turbid, odorless, slippery and viscid fluid, which upon standing for a time, separates into an upper transparent and lower turbid layer, the latter consisting of mucous flakes, salivary corpuscles, epithelial scales from the mouth, etc. The reaction, as a usual thing, is weakly alkaline, although it may be neutral, or even weakly acid. It is asserted that the reaction early in the morning is weakly acid, neutral, or amphoteric, that after every meal it becomes alkaline and then gradually returns to the neutral or weakly acid reaction. The specific gravity is 1.002-1.009.

The chief parts of mixed saliva are: Proteid, mucin, a diastatic enzyme (ptyalin), and potassium sulphocyanide (KCNS). Besides, we find inorganic salts, gases, traces of ammonia, nitrous acid, urea, etc. Certain drugs also are removed from the blood in the salivary secretion.

According to recent analyses, the human saliva contains 98.8-99.5 per cent water, and 0.5-0.2 per cent solids, of which 0.0-0.4 per cent is organic; the salt contents is 0.0-0.2 per cent and the KCNS, 0.003-0.01 per cent. The quantity of mixed human saliva secreted in twenty-four hours is about 1,500 c.c.

Mucin is a conjugated proteid, a glucoprotein and chemically characterized by its high carbohydrate contents. Mucin is soluble in a very little alcohol. It is precipitated with acetic and other organic acids. Mucin, as a constituent of saliva, we believe will play a very important part in the hypothesis upon which a hopeful solution of the cause of caries will be built and the viscosity of the saliva as indicated by the amount of proteids in the form of mucin present will mark an index of the existence of caries, as will be shown later in this paper.

The chemical nature of mucin occasions the questions, whether the functional abode and eliminative purposes of precipitated mucin act as a dialyzing membrane to bacterial products, or whether or not some fermentative changes are induced in the carbohydrate group of mucin itself, thereby producing deleterious fermentative products in the form of mucic or other acids, concerned in the cause of dental caries. Mucin on being hydrolyzed with an acid gives rise to a carbohydrate. It is the product of these biochemic forces with which we have to deal in a true propaganda of oral prophylaxis.

It is now best to consider the changes produced in foodstuffs of the carbohydrate series and show briefly the action induced by hydrolyzation and fermentation. As previously mentioned in the paper, two extensive forces are concerned in the preparation of our general foods for assimilation. The first of these two changes is induced by mastication.

Carbohydrate changes are of two kinds and are produced in the mouth by two great functional factors; one a physical, the other a chemical change. The masticatory apapratus consists of teeth, lips, cheeks and tongue. These formidable appliances, by a combination of concerted activities, prepare the foods for salivation and fermentation.

It is the process of salivation in which a large percentage of the carbohydrates are hydrolyzed and changed by zymotic action into chemical substances suitable for further fermentative changes by bacteria that most concern us. Because of their importance, I shall now begin to deal with the changes induced in the carbohydrates above mentioned by the salivating fluids of the mouth.

The absolute mastication and salivation of foods is now called Fletcherism by some men, only in due respect to the first American disciple of a reasonably old theory. But since we are to signify this process of preparing our food by the term Fletcherism, I believe it my humble duty to say that no living man has given us so much data upon the scientific and economical consumption of foods as has Horace Fletcher, and I wish at this time to pay my respects to a man who rode a splendid hobby until it has done a great good to the people in general. It must not be construed to mean that my paper will in any way decry the man who gave thorough mastication such an impetus, or that I will try to belittle his prophecy or the importance of his past work. But, on the contrary, I am now and shall always be an ardent supporter of his principles of the mastication of foods, provided due care is given the mouth, to rid it of the excessive amounts of inverted polysaccharides produced by this intense and prolonged masticatory action.

Since Fletcherism increases the enzymic action of the ptyalin by further breaking up the starch capsule and hydrating a larger percentage of the carbohydrates, and by prolonging the stay of the yet unchanged carbohydrates in the mouth, fermentable sugars may be increased from 20 per cent to 60 per cent (by the feat called Fletcherism).

If only a small per cent of our people are free from caries with the present average insufficient salivation and change which salivation produces in the food in the mouth, you can readily understand how quickly the remaining per cent will be included and to what extent caries will prevail in the mouths now affected by the small per cent of saccharides converted, should intensive mastication methods be adopted without the use of measures for the removal of the increased amount of fermentable sugars.

The following outline, much used and copied from Goodby, but directly descendant from Miller, will at once show the theory of carbohydrate conversion into the agents we are to consider as the chief factors in the cause of dental caries:

Monosaccharides ($C_6H_{12}O_6$).— Dextrose, devulose (glucose). They are directly fermentable by yeast into alcohol and carbonic acid.

$C_6H_{12}O_6$ + yeast = $2C_2H_5.OH + 2CO_2$.
Dextrose. Alcohol.

or by several of the schizomycetes of the mouth into lactic acid.

$C_6H_{12}O_6 = 2CH_3.\ CH\ .\ OH\ .\ COOH$.
Dextrose Lactic Acid.

This equation does not exactly express the entire change, as a certain amount of the sugar is used up by the growth of the organisms. To obtain the acid in pure form a fermentation is carried on in a large flask, containing sugar (lactose or dextrose) with a layer of precipitated chalk at the bottom. As the acid is produced it combines with the calcium, forming calcium lactate. The lactate is filtered off when the action has ceased, and the acid recovered by distillation with sulphuric acid.

Disaccharides ($C_{12}H_{22}O_{11}$).—Cane sugar, milk sugar (lactose), malt sugar (maltose).

The disaccharides are regarded as condensation products of the monosaccharides with the elimination of a molecule of water.

$C_6H_{12}O_6 + C_6H_{12}O_6 = C_{12}H_{22}O_{11} + H_2O$.
Dextrose and Levulose. Cane Sugar.

The importance of this is seen in the fact that before fermentation of the higher sugars occurs, they require hydrolizing to the lower or monosaccharide form.

Cane sugar is not directly fermentable by yeast, but an invert ferment produced by the yeast changes the cane sugar to dextrose and levulose, which is then fermentable. Some organisms occurring in the mouth are able to transform the sugar direct, but as a rule cane sugar takes much longer to ferment than the glucose (dextrose and levulose).

$C_{12}H_{22}O_{11}$ H_20 $C_6H_{12}O_6$ $C_6H_{12}O_6$,

or

$C_{12}H_{22}O_{11}$ H_2O $4(CH_3 . CH . OH. COOH)$.

In the experiment direct inversion of the cane sugar occurs, the solutions which before produced no reduction of Fehling's solution now give a marked reaction.

Maltose ferments readily with yeast and with the majority of mouth bacteria. It forms a typical osazone with phenylhydrazine. It is the chief sugar formed by the action of ptyalin upon starch in the mouth.

Lactose occurs only in milk. It is the most resistant sugar to the effects of yeast, but is fermentable by mouth bacteria with the formation of lactic acid.

The genus B. Lactis, first described by Lord Lister, is composed of a large number of different species. Organisms belonging to this class are invariably present in milk, and may be generally obtained from sour milk by cultural methods.

POLYSACCHARIDES $(C_6H_{10}\ O_5)n$.—A large group of naturally occurring carbohydrates, the chief being the starch group, the cellulose, the gum group (dextrines, plant gums and mucilages).

Starch.—Not directly fermentable by yeast, is fermented by a few bacteria occurring in the mouth and intestines. Starch is also inverted to maltose by the action of the ptyalin of saliva, and by ferments produced and contained in certain bacteria, some of which are found in the mouth.

The chemical changes involved are extremely complicated, but the final conversion into maltose may be represented thus:

$2C_6H_{1O}\ O_5 + H_2O = C_{12}H_{22}O_{11}$;

Starch. Maltose.

The fermentation to lactic acid occurring as given above.

$C_{12}H_{22}O_{11} + H_2O = 4CH_5CH . OH. COOH$.

Under certain circumstances butyric acid may be formed, but the quantity is very small. It is generally produced by anaerobic bacteria and may be formed by a direct change from lactic acid.

$2C_3H_6O_3 = C_4H_8O_2 + 2CO_2 + 2H_2$.

The other sub-groups of the polysaccharides are unimportant.

We have tried to show, in the preceding discussion, the process whereby injurious agents are created in the mouth, without referring to the long chain of conclusions reached by our own Black and by Williams, and more lately by Waugh in their studies of the circumstances leading up to the direct way in which bacteria induce caries of tooth structure. I want to, at this itme, pay my respects to those men who, by their observations and the publication of their convictions, did more to substantiate the hypothesis of Miller than did Miller himself.

It is now pretty well established that caries has its etiology in the products induced by fermentation of carbohydrates by certain forms of bacteria. I say certain forms, meaning by this that these fermentative changes are produced, apparently, by one family.

Streptococci or bacilli are not individual classes of bacteria, but generic names for heterogeneous classes, all of which are capable of producing a large list of varied products, and the usual identification of one family with the changes known to take place in carbohydrates in the mouth does not mean that any one particular morphological type produces these changes, but that one or more of a great family class may cause the splitting of the carbohydrates we now have under observation.

We began early in our work a study of the many varied characteristics of the bacteria we felt certain were of the acid forming family. No attempt has been made to make a morphological classification of the bacteria isolated in our laboratory experiments, because of the many disputed morphological classifications now offered by nearly every man working in this field, and having no desire to designate the bacteria isolated, other than by their generic names, no reference will here be made to specific forms.

The behavior of certain forms of bacteria in cultural growths upon slabs of dentine was extensively observed and it was early established that certain members of the mouth flora would produce gelatinous appearing plaques, under certain conditions. In broth cultures, containing 2 per cent maltose and 4 per cent mucin, in which were suspended thin slabs of enamel and dentine, after various periods of time, plaques would form upon the tooth slabs. These plaques resembled those described in Black's and Williams' works and later on by Waugh and Cook.

These experiments relative to the plaque forming qualities of the bacteria then under consideration, led to a long series of experiments, which resulted in the following deductions:

That the mouth flora capable of fermenting carbohydrates into acids were entirely influenced in their functional processes of plaque formation by the constituents found in their place of normal habitation.

The resemblance the plaques bore to coagulated proteids by the organic acids led me to investigate the particular facts concerned in the plaque creations, and without burdening you with the details of these long experiments I will say that we reached the conclusions that the plaques were but the products of the combination of one or more of the following three acids found in the mouth and the proteids of saliva in the form of conjugated mucin.

Lactic acid is a product of bacterial fermentation of carbohydrates, as shown in an earlier part of this paper. Butyric acid is usually derived from lactic acid; and acetic acid, which was more constant, is usually derived from yeast fermentation of alcohols produced from the fermentation of carbohydrates.

Diacetic acid in the saliva seems to have led many to mistake the color reaction produced by adding ferric chloride and getting the red color of ferric acetate, for the potassium sulphacyanate reaction, which will be discussed later in this paper.

It was demonstrated beyond dispute that pure colonies of bacteria would not produce plaque formations when the culture medium was free, or as near so as it could be made, from proteid substances. But that colonies grown upon a two per cent maltose or similar medium, to which was added pure mucin from the saliva, would produce plaques upon slabs of dentine or upon ground surfaces of glass.

In these fermentative activities induced by bacteria in the mouth, one or perhaps all of the acids—acetic, butyric or lactic—are formed. Referring again to the character of saliva, we recall that mucin, a conjugated proteid, is one of the principal organic constituents. The first action of bacteria seemed to be the fermentation of maltose into lactic acid, perhaps of one isomeric form. This acid product does not at once begin uniting with the inorganic salts of the teeth, because, being unconfined by dense plaques, it is free to express its combining power with the proteids, and further because the acid while nascent, perhaps has greater chemical affinity for proteid substance of both food debris and mucin than it has for the calcium salts of enamel, owing to the peculiar integrity of this part of the tooth substance, and which prevents a breaking of the combining powers, chemically uniting the elements forming enamel. It is at this point that we seem to have gone one step further in the solving of the entire carious process than has before been taken.

There can be no doubt but that many forms of acids in minute proportion are being produced from bacterial fermentation of carbohydrates in the mouth at all times, and there can be no question but that sufficient fermentation and products of fermentation are being metabolized at all times, to cause caries. But it seems from our tests and observations that the primary coagulating effect of acid products upon the mucin in the saliva, thus creating a physical protection as well as a dializing membrane, has, perhaps, as much to do with the production and retention of deleterious products upon the teeth and in the mouth, with the exception of negative symbiotic relations of bacteria, as has any other factor.

Believing, then, that the plaque formations were the products of a combination of one or perhaps more than one of the acids which we found in the mouth and the mucin of the saliva, we began a series of experiments to establish the relative power these plaques maintained upon bacterial development, all of which are too long to burden you with at this time, but we came to the conclusions that the bacterial activities, both from a functional and reproductive standpoint, were much enhanced after the plaques were formed.

The gelatinous plaques are limited in physical construction by the subsequent combination of the acid products with calcium salts of the teeth, thus making null the coagulating properties of the acids on mucin, as goes the process when bacteria first begin their activities and the acid is free and uncombined previous to disintegration of tooth structure.

Lactic acid, as deduced from gross experiments with the acids concerned, seems to be the chief force, relative to its potency, in coagulating the mucin in the saliva. This precipitation and coagulation of mucin in the mouth seems to rapidly take place prior to the time the acid begins to combine with the inorganic salts of tooth structure, and the coagulating of mucin by the acid products of fermentation cause to be formed the so-called gelatinous plaques which Cook has designated as "Collodial Plaques." This coagulated mass of mucin becomes relatively indestructible by natural conditions in the mouth and no doubt is but a close combination of the acids of fermentation and proteids of the mucin.

We were led to believe that these plaques were of a non-crystalloid gelatinous nature, capable of permitting a dialyzing flow of calcium lactate salts and such products of diastatic ferments as maltose, etc. Therefore this subsequent hypothesis to Miller's and Black's is based upon the belief that these gelatinous plaques are but the creations of by-products of bacterial metabolism, and coagulable substances contained in the saliva. If the secretion of a gelatinous plaque were an inherent characteristic of the bacteria found in the mouth, it would seem that microscopical examinations would reveal these characteristics, as it does in other forms capable of encapsulation or forming gelatinous substances about themselves. This latter characteristic was not found in any of the mouth bacteria. On the other hand, to disprove that plaque formation is only a circumstance occurring in this particular functional process, to which bacteria sometimes devote themselves, pure cultures were prepared and after many hours of incubation, saliva from the various mouths that produced each colony under observation was flown over the cultural field. The following changes were noted:

In repeated examinations made of the bacterial cultures, no gelatinous plaque formations were observed in culture media which had been freed from carbohydrates, and upon causing a flow of saliva freed from carbohydrates but rich in mucin, no plaques could be observed, even up to several weeks after the experiments had been commenced. But on the contrary, in colonies of the same bacteria possessing apparently the same virulence and of the same degree of dilution, to which was added two per cent of maltose and some mucin, after twelve hours gelatinous plaque formations were distinguishable. To add further to the proof that the coagulation of mucin was a functional characteristic of these bacteria, it was observed that under the protection of the plaques the colonies seemed to thrive more rapidly than any of the cultures alone freed from either the carbohydrates or mucin.

To further substantiate our work on this theory that plaque formations were the products of the action of acids upon mucin, several mouths immune to caries were examined, with the following findings: That while bacteria were just as prevalent in immune mouths as in those affected with caries, they seemed to be more attenuated and less virulent than those engaged in active caries. This attenuated condition was easily explained, since it is a well known fact that bacteria are never so virulent as when performing their special functions.

The isolations of bacteria from immune mouths failed to give even one colony, when incubated under the same conditions that produced luxuriant growths of bacteria from mouths in which caries was present, that would produce sufficient acids to precipitate mucin. Therefore, the following conclusions were reached, relative to the failure to form plaques from mucin:

That the lack of coagulating properties of the mucin was believed to be due to the fact that the bacteria had no enzymic action upon fermentable sugars contained in immune mouths, and that consequently no acids were formed, thus no precipitation of mucin, and plaque formations. In this way no carious process could be introduced upon the surface of teeth in such mouths, because bacteria could not carry on the necessary metabolic process of fermentation. It was also observed that the bacteria found in immune mouths failed to possess colorization powers. This may in a measure indicate their failure to be able to ferment carbohydrates and to establish a natural enhancing environment for their activities.

It was my good fortune to observe the conditions in one mouth that had been free from caries for thirty-six years. During the first two years, while under my observation, the bacteria possessed no colorizing characteristics and no caries prevailed. But about six months ago a carious condition appeared upon the proximate surface of one of the lower molars and at about the same time the bacteria then examined from this same mouth showed colorization features, and by long persuasion attenuated plaque formations could be observed with the same means that were used in previous tests, but which had before failed to reveal coagulating properties of the mucin from this same mouth. All of these observations further substantiated our belief in the theory of the coagulation of mucin as one essential part of the cycle of phenomena occurring in the formation of caries of teeth.

Plaque formations could not be observed on dentine slabs of colonies grown in saliva from which the mucin had been precipitated, but still rich in maltose, although acid reaction could be determined. All this led me to the following conclusions: That immediately upon the appearance of acid products and subsequent plaque formations, a force against symbiosis seems to manifest itself and not many hours after a mixed culture growing under a plaque, only one species of bacteria would occupy the bacterial area. This was nearly always one definite form, which led me to believe that certain forms of bacteria of the mouth, when enhanced in their activities by certain physical protections and nutritive environments, would readily perform such metabolic feats as to form acid products and that the absence of one or more of the combining agents would prevent the injuries likely to follow from their union. The continued enzymic process occurring on the teeth coagulated the approximating mucin, forming of it a physical protection for the bacteria, possessing the osmotic power necessary to eliminate the concentrated action of further acid products in their union with the inorganic salts of tooth structure. Combinations of organic acids and calcium salts find ready exit through the collodial plaques protecting the bacterial field, while permitting at the same time, but passing in the opposite direction, the trophic conditions necessary for continued bacterial sustenance by supporting a flow of one or perhaps all three of the now hydrolyzed saccharides. In short—bacteria carry on a process of eliminating the products of their concentrated activities, namely, acid combinations of calcium and other salts, which are dialyzed through the gelatinous plaques outwardly and endosmose, fermentable sugars for pabulum.

This flow of inverted poly-saccharides, also mono and disaccharides upon the immediate habitat of the bacteria is only regulated by the amount of saccharides consumed and by the isotonic index manifested by bacterial action to the external conditions surrounding their activities. The outward flow of such combinations as calcium lactate is influenced by the same osmotic forces, thereby removing all deleterious debris from the field.

That carbohydrates of a fermentable nature must be of consistent application to the area infected, and that the saliva must possess an active enzyme, capable of inducing the first great change in those carbohydrates of the poly-saccharide variety as well as hydrolyzing the other forms of carbohydrates, in order that bacteria of certain propensities may carry on the production of by-products, we believe has been somewhat clearly demonstrated. The first of these changes would be caused by natural forces exerted to prepare foods for our bodies into assimilative and nutritive forms.

The behavior of the bacteria, during the study made of carbohydrate fermentation, was very interesting but it is not my purpose to burden you with the detail of these experiments. Reference to details will be made only in so far as they will help to explain many of the conclusions reached.

Any one who has worked on the field of bacteriology, will at once agree with me that no definite and transferable impressions can be permanently given of progressive cultural growths of micro-organisms, because of the varied characteristics shown by each species. I assure you that the bewildering inconsistency of various classical morphological divisions was all very disconcerting to me during the first few years of my work. But through these difficulties of periodical recognition I was brought to realize that the functional, anatomical and other changes daily manifested in bacteria, were entirely and as consistently influenced by environment, as were the gross changes produced in the more higher forms of life. In fact, I have been called upon to observe changes more wonderful in colonies and individual specimens of bacteria, than I have ever been called upon to observe in the usual forms of organic life.

Bacteria that are constantly in the mouth are difficult to cultivate, because of the natural tendency of the saliva to make them subvirulent through the bacteriolyptic power inherent in the saliva. Bacteria that inhabit the mouth infrequently, are easily cultivated, showing their facultative characteristics well amplified.

The action of the diastase of saliva, which converts starch into achrodextrin and maltose, is very slow, and very little change is produced in foods of this variety in the ordinary hasty mastication and passing of foods in the bolus form through the mouth and most of the diastatic action of the saliva ferments takes place in the stomach, through the usaul manner of partaking of foods. The food in the form of a mass in the fundus is protected within its interior from the hydrocloric acid of the gastric juice which inhibits the action of the inorganic ferments incorporated in the foods while in the mouth.

But the observance of the cannons of Fletcherism causes prolonged retention of all classes of foods in the mouth, and while only one class is changed, chemically, the change induced in this class, largely increases the amount of fermentable foods by changing the polysaccharides into readily convertible acid products. This is accomplished by attrition, by rupturing a large percentage of the unbroken gluten encapsulations of the starch, thus subjecting them to the enzymic action of the ferments of the saliva. They are further prolonged in the mouth by natural glutinous viscus mixture in their combinations with other food substances and with the mucin of the saliva. This mass accumulates upon and in those inaccessible places removed from the forces of mastication and there it ferments until suitably prepared for bacterial activities. Thus is produced the first cycle of events leading up the action provoked by bacteria.

By comminuting and salivating the polysaccharides, we have them suitably arranged for lodgement upon and in those retired places to be undisturbed for great lengths of time, or until such mechanical forces as will disturb them are brought into play. The prolonged retention of foodstuffs of this variety in inaccessible places brings about intense and complete enzymic changes—that is, in the conversion of the group, $C6H10O5$ into sugars, thus increasing the total amount of invertible saccharides, according, of course, to characters of the food partaken.

The physical characteristics of the starch has much to do with the amount of hydrolytic splitting occurring in the mouth, and while no special species of bacteria seems to induce the next series of changes, which we found occurring in the food remnants left in and about the teeth, we were able to isolate four or five distinct forms, seemingly of one family, which were capable of producing acids from carbohydrates.

The protein constituent of the mucin, as indicated by the viscous appearance of the saliva, forms suitable agencies for the protection of the further enzymic activities of bacteria and it is the fluctuation of the amount of coagulable proteids, I think, that regulates the bacterial products of an acid nature.

Basing our conclusions upon the hypothesis of Miller, as further amplified by Black, we believe that the ultimate acid products of bacterial fermentation of carbohydrates precipitate by coagulation the proteid constituents of saliva called mucin, and recognizing the fact, as shown by others preceding me in this work, that a perfect analysis of the functional factors concerned in the curious process and the breaking of some link in this chain of circumstances or happenings which brings about caries, would, perhaps, enable us to apply such means, as would allay or prevent this disease, the following deductions are offered:

Now let me draw as near the line of practical thought as possible. But two opportunities of attack upon conditions predisposing to caries seem open to us. One may be directed upon the bacteria that induce the production of deleterious products from advanced carbohydrate fermentation, as shown in the preceding pages, by breaking up the nutritional value of the bacterial pabulum, by proteolytic or similar forces. But since it is absolutely necessary that our foods of the carbohydrate variety be acted upon by inorganic agencies, in order that we may secure assimilative sugars for absorption and nutritive purposes, it would seem that we have but one real avenue of opportunity, in order that we may arrest and entirely prevent destructive fermentative changes going on in the mouth. This avenue presents such obstacles as the prolonged mechanical retention of fermentable food in the mouth, through unhygenic conditions, and the plan of comminuting our foods known as "Fletcherism," through which the virulency of the bacteria capable of fermentation have greater opportunities of development.

After a long series of experiments conducted in the hope that some agent or agents might be brought in contact with the mouth flora that would inhibit their activities, the following somewhat disconnected opinions have been formed.

It seems improbable that with our present understanding of the chemodynamic power of agents in and upon bacteria in all their functional processes, that we can, at present, make subvirulent or actually destroy their activities without working a great injury to the human hibitat of the bacteria. It would seem that we need a better understanding of specific action upon the proteid body of the bacteria before we can hope to disinfect such a habitat of bacterial life as the human mouth. It also seems improbable that we shall ever reach a true production of asepsis in such cavities of the body as the mouth, through the channels of antitoxins, lysins, etc., because in these cavities we have favorable incubating periods and nutritive means to carry on the life cycle of the bacteria. And besides these favorable facilities for development we have avenues of exit for the deleterious products of bacterial activity without destroying tissue, other than the teeth, thereby promoting symbiosis and exaltation of virulency of the bacteria therein situated.

We find in the mouth no natural forces, such as leucocytic nor lysogenic factors to aid in allaying the activities of the bacterial agents. But we have to depend on such agents as will at once so alter either the pabulum of the bacteria, disturb the abode of habitation, or permit the activities to extend until symbiosis is intolerable to the bacteria, thus to the detriment of our bodies, bring about immunity from mixed virulent bacterial products by self-destruction.

Waugh's work and that of others has led me to investigate the restraining power of potassium sulphocyanate upon the formation of gelatinous or collodial plaques and while my conclusions, perhaps, have been deduced from far less positive evidence than that which formed his (Waugh's), I am compelled to believe that we can not depend upon the amount of potassium sulphocyanate in the normal saliva to inhibit the extent of carious processes. Bunting proved that the test now used for determining the presence of potassium sulphocyanate in the saliva was inadequate and unreliable and he offered a substitute test for this supposedly inhibiting agent to caries. For details of his tests, I refer you to his splendid paper in the Cosmos, December issue, 1910.

Using Bunting's ingenious instructions, I was able to determine the relative constancy of K.CN.S. in nearly all forms of saliva, whether the saliva came from immune mouths or those affected with caries. While Waugh found that varied percentages of K.CN.S., added to saliva inhibited plaque formations, I found that after periods of recovery had elapsed between the applications of the K.CN.S. to the cultural fields, that the bacteria would withstand increased dosage of the K.CN.S., without showing any appreciable decrease in their activities, and finally, we were able to produce plaque formations on dentine slabs in broth cultures, to which had been added about twice as much K.CN.S. as we were ever able to find in normal saliva. It was also demonstrated to our satisfaction, that the amount of K.CN.S. was greatly increased over the average in the mouths of smokers and still caries seems to prevail in these mouths. It was also found that the ever present diacetic acid in saliva formed with ferric chloride, a ferric acetate resembling in color that produced by ferric sulphocyanate and that the test for potassium sulphocyanate used previously to the one suggested by Bunting, gave us no indications whatever of the absolute presence or absence of potassium sulphocyanate. All of this led me to believe that no such constantly and naturally normal constituent of our body as K.CN.S. could possibly have restraining power upon bacteria, so habitually in contact with this or a similar element. Accordingly, I am compelled to believe that caries, both in its inception and ultimate progress can not alone be regulated by an inherent immunizing condition or by artificial preventative means, such as I shall describe in another part of my paper.

It seems impossible to believe that a naturally secreted substance obtained from normal cell metabolism would have restraining power upon bacterial activities, when this is so contrary an occurrence regulating bacterial growth in the human body. None of our restraining agents upon bacterial activities appear as normal constituent elements of the human body, but they are elaborated only in proportion as bacterial products occasion and excite them.

I, therefore, can see no logical reason to believe that such agents as K.CN.S., which we now know is a product of normal proteid splitting, has any restraining features upon bacterial activities, since it is not a product of such bacterial metabolic processes. It would seem, to believe as Cook and Kirk, that the restraining qualities of agents found in the mouth would be but the products of antitoxic metabolism and not to normal metabolism, except in so far as they influence the composition of the pabulum upon which bacteria subsist.

I can not reconcile myself, knowing some of the peculiarities of bacteria as I do, to believe that agents such as K.CN.S. would long be tolerated as an immunizing agent to those bacteria prone to adjust themselves to fluctuating environment, as are the mouth bacteria. In hopes that I might establish my belief, cultures were prepared of about all the mouth flora and beginning with minute charges of K.CN.S. and while the growths were first inhibited and plaque formations disintegrated, after a period of revival of the bacterial cultures, it required much larger charges to arrest the same fermentative functions or plaque formations, as in the previous charges.

Many agents of the cyanogen group, as were also the members of the halogen group, were found to have disintegrating powers upon proteid compounds, particularly those of the conjugated mucin type, before it was coagulated by acids, but both proteolytic and dissolving agents acted quite differently after the mucin was coagulated.

Briefly viewing the action of antiseptic agents upon bacteria of the mouth, I came to the following understanding: Whenever an attempt is made to make sterile the mouth, it must be constantly continued, because I have satisfied myself, in many tested cases, that whenever antiseptics are used and discontinued, the average increase in bacterial growth and virulence is far greater than is found in mouths tested many times before aseptic conditions were attempted. This we were led to believe was more often due to the suppression of antitoxic powers inherent in the tissues and fluids of the mouths brought about by lowered vitality than to the antiseptic powers expressed upon the bacteria themselves.

The whole theory of mouth disinfection is much abused through ignorance of the vital necessities pertaining to such work. To inhibit the growth or make subvirulent, those forms capable of lactic acid fermentation, we have but two avenues of attack. One is to destroy absolutely the bacterial life itself by such powerful chemical or mechanical means as will destroy other higher forms of tissue, a procedure to be advised against. The other form whereby we carry away, thereby destroying, the natural functional habitat of the bacteria (the collodial plaques).

In the mouth, all toxins seem to lose their poisonous action, because of the wonderfully vaccinated structure comprising the lining tissue of our alimentary tract. Roux and Yersin partially proved this statement by inoculating diphtheria toxins in guinea pigs. The pigs could then be fed large quantities of the bacilli with impunity.

In order that some estimate of the antiseptic properties of some of the most generally used agents might be made, a list of agents was selected from a series of tests that has been much used in our professional literature. As it is not my purpose to incorporate these tests in this paper, I shall refrain from mentioning the agents used, except to say that everything from the mild alkaline agents to the most potent germicides were tried and used in the experiments. The real purpose of these tests was to show the relative tolerance of mouth bacteria to increased dosage of these agents. Out of 24 agents, not one showed power to prevent increased tolerance of the bacteria to increased dosage, and with few exceptions all of the agents tested would finally have to be administered to the cultural fields in extremely injurious dosage to even inhibit the functional activities of the bacteria.

It was proven that antiseptic agents may inhibit every apparent functional power possessed by bacteria on one occasion and unless they actually destroy the life of the germ, the germ will soon, after repeated doeses of the antiseptic agents, be able to withstand and thrive in the presence of these agents. Agents which alter the pabulum seem to require of the bacteria longer periods of recovery and slower adjusting powers than antiseptic agents acting upon the microplasm itself.

The return of bacterial protoplasm to its original chemical arrangement, perhaps has much to do in explaining the increased virulency after such combinations of poisonous disinfectants and bacteria are catalyzed.

I quote these experiments in order to guard against the absolute faith placed in some of the antiseptic agents now in use and to say that they have no specific value if used habitually. Therefore we must discourage the faith now held in the mouth washes pretending to act in any way but as detergents.

The relative ability of most of the bacteria of the mouth to adapt themselves to fluctuating environments seems to be the greatest factor in preventing the efficient application of agents of the antiseptic variety. This has been forcibly impressed upon me by the following experiments:

Pure cultures of the coccus variety from the mouth were incubated until a luxuriant growth was produced. The culture medium and bacteria were then shaken at 12:00 o'clock each day for two minutes. The shakings caused much depression in the growth for the first few days, but after that period, any amount of skaking, if made periodically, did not seem to materially effect the bacterial products or growths and colonization took place rapidly, until the character of the culture medium became vitiated with the bacterial products, then the shaking would interfere with the recolonization. This experiment was also demonstrated in fermentation tubes with depressed activities noted.

These tests established in our minds the facts that the mouth flora are readily adaptable to deleterious influences and very quickly adjust themselves to sudden changes in pabulum, etc. All this has shown that our estimation of the continued power of antiseptic agents as used by the mouth wash method, soon lose their inhibiting influence on bacterial virulency.

We believe that the whole foundation of antiseptic efficiency claimed for mouth washes, is fallacious and misleading in the extreme. Periodical applications of antiseptic agents, unless of a type injurious to oral tissue as well as the bacteria of the mouth, become of no value whatever as antiseptic agents after the first few applications.

The ability of bacteria to exist in such constantly disturbed portions of the body as in the mouth, both in a mechanical way and as to its chemical contents, makes the classifying of antiseptic agents relative to their action on bacteria of the mouth a special task.

I think the prevailing influence one form of bacteria has upon the activities of another form is the feature regulating the prevalence of immunity to caries. It seems that the bacteria most concerned in the production of caries are constantly present in the mouth, and since the elements concerned in the metabolic process during the production of caries are also fairly constant constituents of the secretions of the mouth, there can be no question, from a bacteriological view-point, but, that caries is regulated in its extent by the environment offered to certain kinds of fermentative bacteria through the medium of other nonfermentative forms. This has been satisfactorily demonstrated by laboratory experiments. Thus, for example, pure cultures were soon arrested in their fermentative activities, by inoculating the cultural fields with the bacteria of putrefaction. Enzymes obtained from broth cultures by filtration could easily be retarded in their diastatic or proteolytic actions by inoculating the enzymic filtrate with the germs of putrefaction. These are, I believe, some of the factors that seem to regulate the conditions occurring prior to the formation of deleterious agents through the intricate biochemic processes found active in the mouth.

Now, let us look for the practical value that possibly has grown out of these conclusions. It is a fact that selfcleansing surfaces of the teeth never decay. Some great factor must work against the long chain of phenomena that ever grow out of the natural metabolic processes occurring in the preparation of foods of the types so much discussed in this paper, in order that caries may be prevented. And an attack resembling natural inhibiting processes seems the most logical to conceive, because of the inherent weakness of the bacteria to such attacks.

It is a law of bacterial cultivation that an intermittent physical disturbance will retard, and if long continued, will destroy bacterial functionating powers. The observation of this law seems to be the greatest factor operating to the prevention of dental caries upon teeth kept clean sufficiently often by the excursion of foods or the attritional forces of tissue on these surfaces. The failure to observe this one law of bacterial growth by our patients in the care of their dental organs is, perhaps, the one factor influencing the extent of caries.

It is the hope that I might offer some means of a remedial nature, either medicinal or nonmedicinal, that would arrest the fermentative activities of the mouth flora, that has prompted this work. But my failure to find an antiseptic that would act as a restraining agent and still not act injuriously to the tissues of the mouth, somewhat discouraged the idea of the possibilities of producing prophylaxis to caries through this channel.

So working under the principle of mucin precipitation by bacterial products as the direct means whereby the bacteria concerned in the production of caries carry on their most virulent activities, so they, through this coagulated protecting layer, were able to dialyze the inverted saccharides inwardly, and expel the products of inorganic salt combination with acid products in such forms as calcium lactates, and failing to arrest carious activities by antiseptic agents, it was thought best to try and extend those forces or similar ones, which naturally prevent colonization of bacteria on the surfaces of the teeth now usually subjected to caries.

It is a well known fact that the dentist, with his training, instrumental equipment, etc., is quite capable to so disturb things favoring colonization of bacteria upon the teeth that caries could not develop. The dentist's skill, when assiduously applied, is as able to prevent the inception as he is to substitute parts destroyed after the ravages of caries.

It is not my purpose in this paper to give any instructions to the dentist relative to the procedure necessary for him to follow in his infrequent care of the teeth of the patients. He has at his command every needed asset, the patient has none. But I am more than anxious that I impress upon you a few simple precautions that the patient may follow, under your direction, in order that he may give his mouth, and teeth in particular, the proper care to prevent caries. I feel that if suitable and unburdensome means are offered the patient he may more nearly approach the ability of the dentist in the prophylactic care of his mouth.

Black early established the fact that self-cleansing surfaces of the teeth never decay. No one man, or group of men, has so impressed this upon us, and in establishing his areas of immunity, he was quick to observe that caries was alone a micro-chemical process that must be favorably protected and undisturbed for certain periods of time in order that the full cycle of micro-organic processes might be carried out.

Miller and Black lead us through and up to the following seemingly logical facts:

That carious processes usually began upon surfaces of teeth retired from the disturbing forces of mastication. Black designated such retired portions of the teeth: "Points of Localizations."

He also made a law governing the appearance of caries on the teeth. That surfaces of teeth from which the food debris is removed by any force whatsoever are free from the metabolic processes of bacteria, because of a total removal or of sufficiently great disturbance of their pabulum to prevent concerted and continued production of deleterious agents.

The conclusions thus reached are, that any means whereby the bacterial cultures could be disturbed, either by removing a part or all of their pabulum, or to so alter the pabulum that it would no longer provide substances for suitable plaque formations, thus preventing their free supply of carbohydrates and elimination of such products as calcium lactate, was the most logical channel through which we might carry on prophylaxis.

Patients are, as a rule, as poorly equipped in respect to mechanical agents for cleaning the teeth, as they are richly equipped in so-called antiseptic mouth washes and dentrifrices.

Since our experiments have shown that the antiseptic agents usually are of more psychic value than antiseptic, in that, by their agreeable flavors, they stimulate the use of such agents as the tooth brush, and since we believe that no inherent normal cell metabolia products, such as K.CN.S., etc., affect bacterial activities, there seems to be but one road of attack and that is to extend the cleansing methods used by the dentist to the patient.

I therefore desire to take up and briefly discuss simple means and appliances for the constant use of the patient.

Impressed with the assertion made by Black, that good clean water and a suitable brush would, when assiduously applied, prevent caries, and having lost confidence in the possibility of destroying bacterial virulency, or of disentegrating their habitat in the form of plaques, a series of experiments was begun to determine the effect intermittent brushing would have upon the teeth. After conducting these experiments over many mouths, it was determined that absolute and habitual cleansing would not only decrease the number of mouth flora but their capabilities of precipitating mucin in glucose cultures. As this was the thing sought for, we labored that we might build suitable mechanical agents of the brush variety that would reach, as far as is physically possible, all surfaces of the teeth. In order that I may, in some practical way, demonstrate the methods used to accomplish this art, I have prepared ten models of various cases, showing the application of what we believe to be a very important part of this paper. Following the apparent good results from the preparation of one or more brushes for the various mouths, I wish to refer you to the manner in which brushes are prepared for individual teeth and cases.

Models are made of the mouth and teeth and brushes are then prepared by removing or altering the shape and number of bristles to fit the case at hand. I do not believe that any brush, whatever its shape, is quite suitable for universal use, more than I believe that an artist might draw the fine line of detail with a whitewash brush, nor paint a house with a striping bristle. I do absolutely believe that a brush or a number of brushes should be built for the individual case. Quite often one brush will splendidly clean one side of the mouth and absolutely fail to even begin to clean the other. This may be due to the patient's inability to apply the means at hand. If this is true, it is our business to place in their hands, suitable agents for reaching all parts of the teeth likely to decay.

It seems to be the function of the average built brush to reach those surfaces of the teeth that are, as a rule, naturally cleansed by the excursions of foods and by the frictional forces of the soft tissues of the mouth. In constructing individual brushes for the more inaccessible places, we may extend prophylactic influences, and greatly circumscribe decay or prevent it altogether.

The models accompanying this part of the paper will best explain the logic of the individual brush preparation. As the interproximal surfaces of the teeth just gingivally to the contact points seem, aside from children's teeth, to be the first parts of the teeth to afford colonization of bacteria, an attempt to establish means of reaching these particular points has been made in model No. —— with a brush of widely separated rows of bristles.

Looking for the reason why colonization of bacteria is more often found upon approximal surfaces of teeth, observations were made in cases of several persons showing some disintegration of tooth structure at these points and the conclusions reached were that whenever the gum septum was removed, food debris found lodgment and decay began. Why decay began on one tooth or one approximal surface and not another soon found explanation through the inquiry relative to the use of the wooden tooth pick, only to find that it had been habitually used at certain cenvenient places in the mouth, not because of discomfort from the packing of food between these teeth, but because of the ever present tray of tooth picks upon the table suggesting their use, long before there was any real necessity for removing anything from between teeth. In view of these findings, I want to stamp here my disapproval of the presence of such vicious agents as the tooth pick, upon the table or in the pockets of our patients, not only because they furnish ready means of transferring infections from one part of the mouth to another, but because their constant presence suggests their injurious use.

Relative to the efficiency of tooth powders possessing an insoluble grit, tests were made to establish the influence of gritty substances over bacterial cultures. It was found that agents of a reasonably insoluble nature would act as incentives for plaque formations and that in colonies growing under the same identical conditions, one in which calcium salts was placed in colodial sacks, would show much more rapid growths, always forming around the calcium agent, than would the colonies grown with soluble agents in the medium.

This was partially attributed to the suitable surfaces for adherence offered the colonies and to the immediate neutralizing effects the calcium salts offered by combining with the acid products of the bacteria. It was therefore concluded that if grits were used in our dentifrices that they should be of a soluble nature. Aside from the advantages the grit offered for immobolizing the colonies of bacteria, no other objectional features were noted in the most popular makes now offered the profession, except the wonderfully misleading effects the dentrifices containing oxygen are believed to possess.

Oxygen in nascent form has great destructive action on oral tissue, as well as on bacteria, thus breaking up the inherent vaccinal characteristics to bacterial toxins naturally existing in the epithelial cells.

Lillie has shown in his investigations that oxidations, most rapid and destructive, occur in dense tissue such as epithelium. I, personally, have observed the keratotic conditions produced in the epithelium of mucous membrane—by the use of oxidizing agents. Especially was this shown in two diabetic cases with the usual dryness of the mouth accompanying this disease.

I believe that the dentist should assume the responsibility of directing patients in the prophylactic care of their teeth, by selecting the necessary agents, such as suitable tooth brushes, ligatures, rubber bands and detergent agents, as will by trial permit the patient to disturb one part, or all of the long cycle of micro-chemic changes, which we believe causes caries of the teeth. This, it would seem, could only be done by having complete prophylactic outfits, consisting of one or more blank brushes ready for fitting to the model and mouth by the dentist. This outfit should also contain ligatures of suitable sizes for various uses, also spools of rubber ligature. The rubber ligature seems to present many advantages over the silk. The prophylactic outfit should be housed in a case of metal and be divided into compartments for the reception of all of the appliances needed for the patient's dental toilet.

I can not give a list of universal rules for the patient to follow, as each case demands individual advice and attention by the dentist. Therefore, the character of the brushes, whether stiff or not; shape of the handle, rows of bristles, ligatures of rubber or silk, are selections left for the adviser and not to the patient or layman. The frequency with which this toilet outfit should be used can not be foretold and only special observation in each individual case by the practitioner will give the best results.

In view of the value of the tooth brush as a cleansing agent. and its apparent superiority over all other agents as a disturbing influence on bacterial cultures in the mouth, I feel that too much attention can not be paid to the preparation of individual brushes. Observing the anatomical arrangements of the teeth and other tissues of the mouth, the shape of the vestibule, the amount of surface of tooth structure exposed to brushings when the soft tissues are voluntarily lifted away by the patient; the range to which a patient may apply the frictional action of the brush, all these are factors concerned in the construction of the individual brush for use by the patient.

I have sufficient confidence in the dentist's ability to grasp the importance of the individual brush for such irregularities of mouths as are usually presented. I, therefore, in the light of the good results growing out of a great number of practical tests made on my own patients of the individual brush construction, hope that my professional brothers will take up this practice looking to the elimination of caries.

NOTE: In the July issue, 1910, of the Dental Cosmos, Edward C. Kirk published, under the title of "A Consideration of the Question of Susceptibility and Immunity to Dental Caries," some experiments which seem to have substantiated the theories advanced in this paper relative to the precipitation of mucin by acids resulting from carbohydrate fermentation. The deductions made by Kirk in his laboratory experiments quite agree with the conclusion reached in the experiments made in our own laboratory some three and a half years ago, at the beginning of the preparation of this paper. I am more than thankful for the publication of Dr. Kirk's observations, even though they preceded in publication parallel thoughts of my own made more than four years ago, but not substantiated by subsequent laboratory and clinical observations, until a few months later. The particular step which carried my work away from that of Kirk's is the explanation of the function of the "Plaques" and the factors making for or against their formation in mouths affected with and those immune to caries.

Our laboratory experiments quite disagreed in the following particular. He makes the statement in the paper above referred to: "On the other hand it is abundantly proved that the film or plaque exists upon teeth immune to caries, in which cases acid decalcification does not take place in the enamel beneath the plaques."

We found just opposite conditions to the above statement, as is further explained in our paper, and while the first experiments along this line were followed out some three years ago, no subsequent experiments have caused us to change our opinions relative to the failure of plaques to form in immune mouths.

I am indebted to the authors of many of our standard text books for information relative to the work prosecuted in the preparation of this paper. I am especially obligated to the author of Tigerstedt's Physiology — to Goodby's Mycology of the Human Mouth and to the many fundamental citations given by Black in his monumental work upon "Diseases of the Hard Tissues of the Mouth."

CARE OF THE TEETH IN THE STATE INSTITUTIONS.*

BY DR. J. L. GREEN, KANKAKEE.

Mr. President and members of the Illinois State Dental Society: My coming here to address this society grows out of a visit to the Board of Administration, of which I have the honor to be a member, by Dr. Koch, one of the members of your society, and a man who has long been identified with its activities. He came to us rather in a complaining mood, and I am not going to do him an injustice in saying what I shall have to say, because we were not doing very much in the way of dentistry in the care of wards entrusted to the management of the Board of Administration. This board, as you doubtless know, gentlemen, has jurisdiction over all of the charitable institutions of the State of Illinois, of which there are seventeen in number. There are seven hospitals for the insane, and the others are institutions to which people are either committed or admitted to be cared for by its charities and to be educated in some instances.

I came into the service in Illinois five years ago, coming from another State to be one of the superintendents of one of the hospitals for the insane, and very soon thereafter agitation began for a law providing for a Board of Administration, which was enacted two years ago, and seventeen boards gave way on the first day of last year to one board which has now full charge and authority in all these matters.

When I began service as a physician in a hospital for the insane nearly twenty years ago in a sparsely settled community in northern Nebraska, where we had about two hundred patients, the custom at that time was that if a patient was committed he was a ward of the State, and locked up night and day, and visited by a physician in the morning, and one in the afternoon, and if sick cared for in a particular way. There has been very much advance made in the care of the insane in the last two years. Our hospitals for the insane are now very well equipped, and if you could spare the time to visit the institution at South Bartonville, known as the Peoria State Hospital for the Insane, you would see there a well equipped hospital, with all the things that are necessary to meet any emergency, medical, surgical, or dental. When I began this service we did what a country doctor would do if he had a patient coming to him with a tooth ache, namely, extracted the tooth, and that was the end of it. But things have improved as the years have gone on, and there has been established what is known as a visiting dentist who spends two days in the week in caring for the teeth of the inmates. I have thought, and acted upon it, that an institution the size of the one at Kankakee, with approximately two thousand seven hundred patients, more than half of whom are known as county patients, should receive the services of dentists, and so, some four years ago—I do not remember the exact date—I engaged a dentist and fitted for him a complete office. I take it that it was complete because I bought everything that he asked me to buy. He was engaged to give his entire time to the care of the dental needs of the patients and was forbidden to do dentistry for employes, who have wit and wisdom and salary, and can afford to pay for such service. This dentist examined the needs of 2600 patients present, and after he had gone over them carefully, we laid out a plan of work. He began at 8 o'clock in the morning, a nurse assisting him, and at 12 o'clock noon he would take time for lunch, and then begin work again and work until 5.

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*Read before the Illinois State Dental Society May, 1911.

Dr. Zeller, Superintendent of the Hospital for the Insane of this city, has a dental service, not as complete as that perhaps, because the institution over which he presides is not quite as large, and the patients do not stand as much in need of dental services. Then, too, there is always this problem which confronts the poor: it takes money; and in order to get money out of a legislative committee you have to confront a proposition something like this: The average citizen of the State who becomes elected as a representative of the House or Senate, and gets appointed upon an appropriation committee, is simply an agent of the State to care for and occasionally distribute the income of the State for the purposes of government. But it is hard to get money.

When the board became effective on the first day of January, 1910, this problem was taken up and carried on. In our system of examining patients who are admitted to the hospital for the insane, patients are referred to a dentist with just as great a degree of certainty and are dealt with as systematically as if they were referred to a physician. The dentist has made a cut showing the upper set of teeth and the lower set of teeth of each patient. A patient, if able to go to the dentist's office, is taken to the office; if not, the dentist goes to the bedside within twenty-four or forty-eight hours following the admission of the patient, makes an examination and notes the condition existing in the mouth, and makes a typewritten recommendation as to what is required to put the mouth into a good dental condition. I may not use as good and clear language in describing this work as you would do, but, at any rate, the teeth are to be fixed up. If that patient is a county patient, the dentist is directed to proceed at once to do the necessary work, and we rely on his judgment. If it is what we call a bond patient, the right party is immediately requested to transmit sufficient funds, not to cover the service of the dentist, because the State pays him a salary, but to cover the cost of the material used only.

In the scheme of reorganization it was recognized that one man could not do the work required in a hospital of the size of the one at Kankakee, or the size of the one that now exists in Peoria. The institution here is growing very rapidly, and it is hoped that the Legislature will appropriate additional money to carry on this work in this institution, which is becoming one of the largest hospitals in the world. We have provided in our scheme of organization for a dentist and dental internes. We do not ask them to come in as dental internes and work for nothing. We pay dental internes fifty dollars per month for a period of twelve months, and furnish them a good and comfortable living, including all the things which go with such a living, namely, board, room, laundry, etc. We pay a dentist as large a salary as we can agree upon, but there is no fixed rule for the salary of dentists at any institution. The dental service at Kankakee and at Peoria, and the dental service at Jacksonville and at Elgin is not yet well established, and at Watertown it is just being established, and on the first day of May Dr. Koch came to see us about the school for boys at St. Charles and the school for girls at Geneva. We have five hundred girls at Geneva, and four hundred boys at St. Charles. We have engaged a dentist, believing that one man can give three days of each week at one place, and three days at the other place. Of course, we pay him a salary. I was given authority to find a dentist for the Lincoln State School and Colony, which is outside of civil service. There we have fourteen hundred children who need attention. The chairman of the board felt that the civil service commission should advertise an examination, and it is only an examination, I take it, in the rudiments of dentistry, and an effort has been made to get some one to signify his willingness to go to the Lincoln State School and Colony to render dental services for these children. Some good woman in Champaign wrote a letter to the Governor, and the Governor referred the letter to the Board of Administration, and in this letter the woman stated that there was a girl at Lincoln who had an ulcerated tooth for two or three weeks, but had no relief. When it came to an investigation, it was found that she was a county patient with no funds to pay a dentist. A dentist cannot afford to work for nothing all the time, and there was nobody to take care of these helpless children with aching teeth, and out of this has come the appointment of a dentist for the Lincoln State School and Colony.

If you will furnish men who want to do this work, I pledge you that the Board of Administration (and I have the power to bind them between now and the first day of August), will engage them and establish a high-class dental service in every institution that is entrusted to the care of the Board of Administration. (Applause.)

DENTAL INSPECTION IN THE PUBLIC SCHOOLS.*

BY DR. W. A. EVANS, CHICAGO, ILL.

Mr. President, Ladies and Gentlemen, and Members of the Illinois State Dental Society: Before I proceed with the main part of that which I have to say, I want to tell you of the Child Welfare Exhibit that is being inaugurated in Chicago tonight. A fair part of this audience are dentists who have come from that city, and another part are dentists from the State, who probably would find it worth their while to go to see that exhibit at least once during the two weeks it is to be in existence; and then another part of the audience are people who are either the parents of children, or who are interested in children, and I believe it would be well worth their while to run up to Chicago during the next two weeks and see that exhibit in the Coliseum. It is to be there for two weeks. The admission is free, except two days of each week, Tuesday and Friday.

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*An address delivered at a public meeting in Peoria, under the auspices of the Illinois State Dental Society May, 1911.

In addition to the exhibit there are to be a series of conferences to discuss various things connected with the welfare of children. Now, what is the nature of the exhibit? The first part of it was prepared in New York at an expense of about seventy thousand dollars. It illustrates what has been done for children in New York City, illustrating further, and probably of more importance, the things that should be done that were not being done in that city. That exhibit was seen by Mrs. Cyrus McCormick, and she decided to defray the expense of moving it to Chicago. She gave thirty thousand dollars for that purpose, and that sum has been increased to fifty thousand dollars, and that means up to the point I have indicated an expenditure of one hundred and twenty thousand dollars for that exhibit. There has been an additional expenditure in Chicago, I think, of thirty thousand dollars, so that the money cost of the exhibit is about one hundred and fifty thousand dollars. We are so accustomed to measuring things by the money cost of them, that it is a good and graphic way of presenting a thing to the ordinary mind.

What is there shown? There is a display indicating the things that are being done in Chicago. These things are added to the things that were brought on from New York. There is a showing of the things that need to be done in that city and are not done, and part of the showing is the harm that is done by bad teeth, and the agencies that are needed in order that this harm may be rectified; the things that are done for the education of children, for the improvement of morals of children, for giving children a fairer chance in every way; the things that are being done to compensate for the things that the child-life loses by reason of the lives that they live under a more complex and more artificial civilization in these later days. In addition to the demonstration, ocular in character, there are to be manifestations of the life work of children. Tonight this show will be opened by a chorus of fifteen hundred voices, all of them school children. There is to be a series of conferences or discussions on various questions connected with school life, and on the twenty-third of this month Dr. Bentley, one of your members, is to discuss before one of the associations the question of the care of the teeth of the school child.

I trust that this announcement of this exhibit is enough to create an interest on your part to go and see it. I am sure that if you go to it you will find there enough of interest to make you want to go again and induce you to persuade others to go.

It is proper that a scientific organization like this, coming into a city like this, should leave some impression upon the city. The time was when scientific bodies discussed technical things among themselves; they made no provision for lectures for the people of the community. In consequence a State meeting would come to an end, and the various men who had participated therein would scatter to their homes and there would be no opportunity for the diffusion of information as the result of these meetings. That was a time when in all things medical at least there was a certain amount of mysticism, and there were those who believed that medicine was more effective if the curtain was never raised, and if the plain white light of common day was never allowed to shine in. At the present time we know that the ills of people that can be cured as the result of medical and dental efforts are comparatively small as compared with the great bulk of ills that can be spared them as a result of their own intelligence. There is a great community gain, and a great gain for the profession by devoting some part of their time on occasions such as this to a public discussion of questions that are of general interest. While this is true in a measure, it has worked, however, a certain discomfort to the speaker of the evening. I came down here expecting to address an audience of dentists and did not calculate on having this assembly of people from the City of Peoria, outside of the ranks of the dental profession. It necessitates a change somewhat in the character of the talk that I am to make.

I understand that you have just inaugurated school inspection in Peoria; that in this current week you have had the first inspection of school children you ever had in this city. In this you are not very much behind the City of Chicago. It has been just four years since school inspection was inaugurated in that city. There is a certain sequence between the needs and the effort that is put forth to supply those needs and in cities where life is more complex, the problems are more difficult of solution, and in consequence of that philosophical sequence those cities that are large generally institute these things earlier than do the cities of smaller size. As I have said, just four years ago school inspection was started in the City of Chicago. It grew as school inspection has usually grown—happily, however, not in Peoria—out of a great emergency. Scarlet fever was sweeping over our city and something like one thousand cases had been reported in a single day. In consequence trade was being paralyzed and mothers were afraid for the safety of their families. As the result of this there was a great compensating effort on the part of that community, by over-activity to compensate for its lack of activity. In consequence school inspection was begun with one school inspector for every school in the city. About two years later physical examinations of school children were undertaken, and a little later it was found that it was desirable to supplement the physical examination with a nurse service, and then just this year there has come about an extension of this nurse-service, so that the community is now recognizing its duty to the child not only during the ten months of school life, but during the vacation period as well, and the school nurse-service and medical inspection of children in the schools have evolved into a child welfare service, and part of that is the inspection of the teeth of school children, not completely for them as I shall presently make plain to you. I understand that this usual order of evolution has not been followed in Peoria. I think you have begun with an inspection that comprehended not only a search for contagion, but also the physical examination of the school children. The philosophy of school inspection is this: It is recognized that school children constitute that part of the community that is almost always susceptible to contagion, and that therefore in the school room, where one hundred or more are gathered together in the morning, the majority of these are capable of contracting contagion, and in going from house to house or from place to place are liable to scatter the disease throughout the community. That to this central area there is liable and probably will come one or more cases of disease that are capable of transmission to others, and therefore the school room is the efficient and economic place to search for contagion in a community, for there are concentrated those who are probably the greatest carriers of contagion. There is not much community sense in that. There is not much to record for the broad economist in that, but it is a beginning. School inspection of this character does not persist long before the school teacher and the school physician and presently the community begin to understand the additional relations, the additional responsibilities on the part of the community towards those school children. That, too, comes about in an evolutionary way.

The first of the diseases to be considered are those that have contagious aspects as well as social and economic aspects. For instance, tuberculosis. That is in part the result of contagion, but is also in part the result of ill-nourishment, of bad housing, of bad home conditions, of bad school conditions. The school inspector, therefore, who comes to study and perhaps to control tuberculosis in the school by reason of the fact that he appreciates its contagious aspect, cannot stop at that point. He must needs go on into the other aspects of the child's life. He does not travel far in that field until he begins to understand that there is a close relationship between the physical condition of the school child and its capacity for learning, and his imagination then runs to the further and far more important fact, and that is, the school child that is left neglected and in bad physical conditions grows up into a man and becomes an expensive member of society.

The inspection of school children for dental defects has a bearing on each of these phases of the question. It has a bearing on the question of the spread of contagion, and that bearing is somewhat along these lines. The great bulk of contagious diseases are contracted through the mouth or through the nose, which is in close opposition to the mouth. Generally speaking, the surface of the body is covered so that disease bacteria cannot gain access thereto. The great majority of bacteria that cause infection in the human body find access to the body either through the nose or through the mouth. Not only that, but the bacteria that get into the mouth are prone to remain there for a considerable length of time. The men who are conversant with bacteriology as applied to disease are accustomed to speak of acute and active infections, of subinfections, of latent infections and of habituation of bacteria. The active infections are the result of bacteria that have gotten into the system either through the nose or through the mouth. The latent infections we find illustrated in the tubercle bacilli that get in through the mouth and traverse the mucous membranes, find their way into lymph glands, and there lie dormant and latent for a number of years in many instances, oftentimes producing no disease at all at any time, and oftentimes producing tuberculosis at a period which is relatively far removed from the period when they secured entrance to the human body. And then there are the subinfections, and by that we mean infections with bacteria that do not produce the usual and typical results, but where the bacteria inside the body in this or that location produce a mild type of reaction. Nature's method, however, of combating bacterial invasion is through habituation, becoming accustomed to these bacteria, and having these bacteria become accustomed to their host, to their habitat. A distinguished Frenchman has said that it is the patient who makes his disease. By that he means that every bacterial disease is in part the contribution of the bacteria that cause it, but it is also in great part perhaps a contribution of the host that harbors that bacterium, and that means this: That one man inhaling the diphtheria germ has a typical attack of diphtheria; and another man inhaling the same germ has a very atypical attack, and an attack of diphtheria that seems to be nothing more than ordinary sore throat, and yet an attack of diphtheria that is just as capable of giving virulent diphtheria to another person as though the disease had been virulent in the first person. On the eighth day of April, in the City of Chicago, we had a man who took sick with hemorrhagic smallpox. His disease was atypical, and he died without that disease having been recognized. Two people were brought in contact with that man. On Sunday morning, April 24th or 23rd, we found a case of smallpox in the brother of that man. He was violently sick of smallpox, and died about one week later. We asked this man where he had been exposed to smallpox, and he said he did not know that he had been exposed to it; but that his brother had died from some sort of breaking out about two weeks before. Did anybody see that brother but you? Yes, Mr. Schneider, who worked with the building manufacturing company, was also visiting my brother. Then we went to the building manufacturing company and we found Mr. Schneider at work with five or six little smallpox nodules on his face.

Here we have an illustration of two cases of smallpox contributed by the same man. One of these men violently sick with the disease, and dying in less than ten days, and the other so mildly sick that he was not in bed at all; that he did not have to quit work, and only had to remain in the smallpox hospital for three weeks. These two cases contracted from this one case perhaps are as graphic an illustration as I could give you of the fact that it is the patient as well as the bacillus that makes the disease. If there is time the host prefers to fight disease by becoming habituated to it, and that means that bacteria are capable of producing disease, can lie in the mouth without causing any disturbance where they are lying, but at the same time they can be spread from that person to another person, and produce a severe attack of disease in that second person. The consequence of all that is this, that there are few places in the human body that are not self-cleansing. There are but two perhaps, in the nose or mouth, that are not self-cleansing, and one of these is the crypt of the tonsil, and the other is in and around the teeth, and I have no doubt but that much of the infection that comes from people that are not now sick, but nevertheless they are capable of spreading sickness to others is by reason of the fact that around the teeth that are unclean the bacteria congregate. In tooth cavities that are carrying masses of decomposing food as well as in the crypts of the tonsils. There are foci of bacteria that are capable of being spread to others, and it is for this reason that from the standpoint of contagion mouths that are dirty, mouths that are neglected, mouths that are filled with teeth that are decayed, are in a major degree responsible for the spread of contagion.

It has been said that the idea of the spread of contagious disease has been evolved from mysticism into the plain ordinary common sense. In the beginning we treated these diseases in great measure on the basis of the exorcizing of devils. Chapin, of Providence, says that the use of sulphur as a means of disinfecting is a relic of the dark ages; that it comes from that time when the idea prevailed that by burning stinking substances we would drive out devils, and that this is responsible for the use of sulphur as a means of disinfecting the air of the room. Now we are coming to believe that in contagion there is not much need of noticing the air, that there is not much need of paying attention to the house or to the bed or to the furniture of the room; that our attention should be concentrated upon the people that are in that room, and that instead of examining for bacteria in the walls, that we will accomplish more of results if we will examine the mouths of the people in the room and see if bacteria are being harbored there. But this is probably not the most important part of this question; probably the most important part of it relates to defects of teeth as a part of the great problem of the physically defective child. There is no wonder that health departments are finding that the most frequent defect among children is defective teeth. The formation of the mouth is an exceedingly complicated process from an embryological standpoint. The teeth in structure and in chemistry differ materially from any other structures of the human body. They are not erupted until after the child has been born, and they continue to erupt until the child has attained majority. Not only that, but the coming of these teeth is most active just at that period of life when children have the heaviest death rate, and in fact when the human being has his heaviest death rate, for the death rate among children under two years of age is by far the heaviest toll that preventable disease exacts at any period of human life.

If you will go to the Infant Welfare Show in Chicago, to which I have alluded, you will see in the health department exhibit there a series of charts on which there are pinned 3,500 dolls, and these 3,500 dolls represent the number of children that die in Chicago each year as the result of preventable disease; as the result of things that should not have been, and this enormous mortality is exceeded, of course, by the still more enormous morbidity, for the great bulk of children that are sick during their teething period do not die as the result of their illness, and that means that just when the jaws are forming, just when the teeth are being formed and are coming through the gums, the constitution of the child is subjected to probably the severest strain that it will ever be subjected to and leave that child alive. You know very well that there is no great strain that is thrown upon the human body that passes away and leaves no scar behind. The illnesses of the second summer are translated into the illnesses of later life. A man in later life who is dying of some disease that seems inevitable, as a matter of fact, is dying from the scars of the ilnesses of his childhood years. I have said that the formation of the jaws is a complicated process. There is a necessity that this underjaw that grows out almost as an appendix to the face, quite apart from the other growing centers of the face, should grow just right and should meet the upper jaw at the right place, and all this means that the great machinery of growth is complicated and not infrequently goes wrong. And so there are inherited defects in the jaws and in the teeth. There are defects of the jaws and teeth that come as the result of the diseases of infancy and early childhood. Then, there are the diseases of the jaws and teeth that come as the result of bad home conditions and bad errors in later life. There are the diseases of the jaws and teeth that come as the result of neglect during the years of childhood. And are these of any consequence? I say to you, they are of major consequence. It is a fearful thing to have a baby die, yet not infrequently in the broader humanities, in the broader sympathies, it is the best thing that could have happened to that child. Not infrequently a worse thing for the child is to have lived through a severe illness and all scarred mentally and physically drag on through life. Children who have teeth that are bad suffer in several ways: in the first place, this is the most important time in the child's life from a physical standpoint. The child goes into school but a few feet in height and weighing, let us say, fifty pounds. At the end of eight years that child comes out of school a man or a woman, as the case may be. He is great, tall, strong, with his physique entirely changed, and that means that there have been great nutritional changes during those years. That means a great amount of food has been taken in, has been transformed into tissue and into energy, and if that child has organs for chewing, and organs for the absorption of food, organs for nutrition that are proper and fit, that child goes on producing energy and vitality and producing a physique that means much for that child. But if, on the other hand, that child cannot chew its food well, and therefore is improperly nourished, there are several things that come about; a child improperly nourished cannot study as well as it should, and that means that the school teacher must put more energy into the teaching of the child for the production of results than would otherwise have to be done. That means the child cannot pass from grade to grade as rapidly as it should pass.

About a month ago I was in the City of New York, and I heard the principal of probably the largest school in the United States tell of this experience; last year four schools situated close together in the City of New York concluded they would investigate the reason why their students did not make grades. They investigated the physical condition of the children that had not been able to pass from one grade to another during the year. The conclusion that they arrived at was that it is possible for all school children that are physically sound to make the grades that are set down by school boards, and that when a child does not make grade it is the result of physical conditions rather than of mental conditions. To this there are certain exceptions, but the rule holds good.

A few days ago I was at a meeting in the City of Chicago where Mr. Park, Vice-President of the Illinois Central Railroad, told of a recent visit to the Isthmus of Panama, and he told of why the French had failed in their efforts to dig a canal across that isthmus. It was due to the fact that they did not pay proper attention to the physical condition of men who were working on that Isthmus; that the American government was spending two per cent of its entire expenditures for the physical welfare of the people who are working on this canal, and it was found to be an advantageous expenditure because the money that was paid out in other ways earned a larger return by reason of the better physical condition of the men who were getting this two per cent. These were not the stories of physicians or sanitarians. The one was the story of an educator that saw this question from the standpoint of one who is teaching children, of one who is looking after the mental and not the physical condition of school children. And the other was the conclusion of a business man, who had studied the proposition, who viewed it, who weighed it, and who concluded concerning it purely from the standpoint of the efficiency that was returned from this indirect expenditure. The same principles that prevail among these people who are working on the Isthmus of Panama prevail upon children that are learning, that are being taught in the public schools of Peoria and throughout the state of Illinois. There is, however, a more important aspect to this question still, and that is this: We can ill-afford our heavy infant mortality. We can ill afford the loss of school effort and the decrease in school efficiency by reason of children who are not physically sound, but we can far better afford this than we can afford to have neglected children grow up to be members of society. The most expensive thing to the state of Illinois is not its waste in educational effort or its waste in infant life, but its waste in raising citizens who are exercising the right of citizenship, but who have not a proper view of life, who have not a proper concept of their relations toward their fellow men, who are not good citizens, and in consequence are not responsible for good laws and good administration and good judicial decisions. And the great waste of the State of Illinois is from bad laws and from bad public sentiments and bad point of view that comes from bad citizens, and the majority of these are the results of neglect during the years of childhood life. And now, how is it proposed that this shall be remedied? That the people of this city and vicinity are interested, is illustrated by your presence here tonight; that the dental profession is interested is illustrated in several ways. I want to call your attention to the fact that the Illinois State Dental Society has prepared an educational bulletin on the care of the mouth, which is for the purpose of educating the people of this state in the better care of the mouths of their families, the better care of the mouths of children more particularly. There are many plans that have been proposed for the accomplishment of this object. One of them is the plan that has been proposed by Dr. Ottolengui, I believe, in New York City, and it is this: that schools should be equipped with a corps of nurses and dentists who are engaged in cleaning the teeth of children, keeping them clean to the end that the decay in those teeth may be prevented. The great advantage lies in this, that it will train a group of people who at the present time have no facilities for such training. The cleaning of teeth can be done with a fair degree of satisfaction and success by nurses who are adjuncts of the dental profession, just as there are nurses who are adjuncts of the medical profession.

Another plan that has been proposed is that through circulars, through pamphlets, through charts in various ways, the people should be individually and collectively educated toward the better care of their teeth. A plan that has been proposed is that a series of dental clinics shall be established; that the children shall be examined, and that the defects in their teeth having been discovered, that in these clinics the teeth shall be repaired and as many of the defects removed as possible. This fundamental principle should apply, that no person in need of dental care and unable to pay for the same should be allowed by the community to go without that dental care, and as a corollary of the same proposition, no person in need of dental care and is able to pay for the same should have that dental care provided by the community. I believe that here are two fundamental community and professional propositions that should be at the basis of all of this work, and I believe that the community and the dental profession alike are interested in seeing that the work should be done on this basis with a proper regard for these two fundamental principles.

It is said, that in the City of Chicago one per cent of all people are receiving charity or philanthropy; that they are not able to maintain themselves in the struggle for existence in that city. Now, that figure is the percentage of those who are receiving general charity. It has been found that twenty-three per cent of the people receive medical charity. Why is this disproportion? The disproportion is due to this fundamental community principle that the majority of people who become ill, the majority of people who are attacked with a disabling illness, are not able to maintain themselves on a cash basis. The ordinary citizen in a community, who goes along caring for his family and meeting his bills, paying his way as he goes, is able to carry the load of that family under ordinary circumstances; but if he becomes ill in such a way that he is disabled, that twenty-three or twenty-two per cent of the community, in addition to the other one per cent that are habitually cared for by the community become medical charges, or charges upon medical charity. The medical man is caring for him, and possibly a large percentage of them being conscientious will eventually discharge their obligations, but so far as immediate payment is concerned, it is out of the question. So far as our knowledge of the facts would lead us to believe, the percentage is greater than twenty-two, and it is probably as high as forty-four per cent. And that means that any scheme for the caring of people by the community must make provision for temporary financial disability along medical lines, certainly for twenty-five per cent—in the community. This percentage will not hold for the dental profession, since operations in dentistry are much more frequently operations of election or of choice rather than operations of emergency. But probably five per cent of the community would have to be cared for by the community along dental lines. That means that the dental profession in laying out this work can properly calculate upon ninety per cent of the community being able to care for itself, so far as its dental work is concerned, and ten per cent of them must be cared for as the result of community effort. That has been planned, and that is to be executed under community guidance. Finally, let us not forget this basic fact, and that is that all of the community, that all of society is one great family; that we cannot neglect our duty toward our brother without having the result of that neglect come home to us. We cannot live in a community and live our lives to ourselves in such a way, but that our lives are influenced by the lives of the other members of the community. And that means that you people, who are caring for the teeth are not escaping, as the result of your personal and family care, the results of faulty teeth in your community. The man and woman with faulty teeth, who have grown up through childhood defective in consequence are in great measure responsible for the community law, for the community methods, for the community prosperity, or the lack of community prosperity. You cannot divorce yourselves from this. You cannot fail to feel the effect of this on your own lives. It is, therefore, a part of your great problem, and I trust that those of you in this audience who are not of the dental profession will recognize that in this work the dental profession is undertaking to do that you have responsibilities and duties as well as they. (Loud applause.)

TANTALUM, A NEW METAL IN DENTISTRY.

BY A. S. VAN TESLAAR, D. D. S., CHICAGO, ILL.

Recently there has come into use one of the rare metals which is probably destined to play an important role in dentistry in the future. The metal is tantalum, so called by the Swedish chemist Ekeberg, its discoverer, who extracted it from a mineral. Because of the difficulties Ekeberg met in attempting to treat the mineral with acids, he called it tantalite; logically enough when he succeeded in extracting a metal from this unyielding compound he called it tantalum.

This was in 1802, although the existence of tantalum had been pointed out by Hatchett a few months before. In 1824 Berzelius and Rose again obtained the metal in the form of a black powder, by chemical means, but it was not until 1902, exactly one hundred years from the time of its discovery, that the metal was produced with any degree of purity. In that year Moissant produced it in his electric furnace, by reducing tantalic oxid (Ta205). Thus obtained the metal is extremely brittle, due to impurities. When obtained in a pure state the metal is as hard as steel if not harder and of great malleability. These facts were discovered three years later.

In January, 1905, appeared the work of W. von Bolton, who, working in the laboratories of Siemens and Halske, succeeded in obtaining the pure metal both chemically and by the electrical method. Dr. von Bolton experimented with the black metallic powder first obtained by Berzelius and Rose. He found that the metal can be obtained in a practically pure form by fusing potassium tantalofluorid with potassium by means of the electric arc, in a vacuum. He also found that the colored oxid of tantalum has the property of conducting the electric current, the same as Nernst found a thin rod of magnesia (Mg0) would do as well as other metallic oxids. But, whereas, Mg0 requires to be heated to whiteness before it conducts the electric current and becomes split into its component parts, magnesium and oxygen, Dr. von Bolton found that the lower oxid of tantalum need not be heated to a very high temperature before it will yield to the current. Strangely enough this does not hold true of the higher oxid of tantalum. A filament of the brown oxid ($Ta_2 O_4$) in vacuo, through which the current is passed, turns to a white heat. First the ends become incandescent and gradually the whole filament turns from the original brown to a white gray and glows brilliantly. A large quantity of oxygen is given off; to eliminate it a vacuum pump is attached to the vacuous globe. Thus obtained the metal is 99 per cent pure. The metal obtained by Moissant contained about one half of 1 per cent of carbon; an admixture of 1 per cent carbon renders tantalum very brittle. Since tantalum has been placed on the market, the technique and processes of its production have been greatly improved. The firm of Siemens & Halske holds the various patents for its extraction and manufacture. The metal is obtainable in the form of small buttons or plaques.

Pure tantalum resists completely the action of all acids, except fluoric, all alkalies, and of moisture, at ordinary temperatures. Its malleability permits it to be hammered out into thin sheets and its toughness renders possible its use in the form of fine wire. In fact, it is as such in the metallic filaments of electric lamps that its greatest field of usefulness has been found so far. Tantalum was obtained in the endeavor to find a new wire material for making incandescent lamps and as such it has not fallen short of the expectations of its discoverer. The tantalum lamps placed on the market by the firm of Siemens and Halske consume only about one half the electric energy required where carbon lamps are used, for the same amount of light. Thus it represents clearly a saving in energy and cost of running of 50 per cent.

The firm Siemens and Halske have placed on the market also a number of instruments for use by dentists, particularly for working the silicate cements. When these instruments are used no particles of the metal are likely to be rubbed off and to find their way into the filling, or, upon the surface when smoothing up a filling. Nor can the acid in the liquid of the cement have any action upon the instrument. In these two particulars tantalum certainly appears to be superior to any material that has been used heretofore in the manufacture of dental instruments. Its range of usefulness in the dental field will, no doubt, increase as the profession at large becomes better acquainted with the remarkable properties of this new metal.

As manufactured at present, the tantalum instruments, with the exception of small things like the tantalum nerve extractors, and root-canal probes and medicators, are not made of the pure metal, but of an alloy, and to this they owe their grayish white appearance. Tantalum is silver white in color.

Where a very tough and thin instrument is required, one that is rust-proof and that will not show any tendency to bend, nor to lose its luster, tantalum will be found to cover the requirements satisfactorily. A spatula made of tantalum will retain its shape no matter to what pressure it is subjected in the manipulation of silicate fillings. Along with its rigidity it will retain its keen edge so that a hardened filling may be easily trimmed. Tantalum instruments may be made sufficiently thin for use in interstitial cavities without sacrificing their rigidity or their usefulness otherwise. They do not stain the filling as do steel instruments and in a lesser degree those of platinum and gold, nor do they become porous and lose their smoothness or polish like the ivory and bone heretofore used in the manipulation of silicate fillings.

For many dental uses tantalum is superior to steel and this metal is likely to replace steel in the manufacture of all nerve canal instruments, including reamers, cleansers and medicators, etc. Their durability reduces the risk of fracture in the canal to a minimum and insures the retention of the serrations in their original keenness. Tantalum instruments are easily cleaned, take a beautiful polish and are not liable to rust. With their aid sulphuric, nitric and other acids can be readily introduced into the root canals, if need be, as the metal is impervious to acids. Sodium dioxid may be applied for bleaching purposes, fluoram in pyorrhea, in fact any of the strong solutions may be used without injury to the tantalum instruments.

H. R. Shapland suggests the use of this metal for bands instead of gold, where a tooth with a large amalgam filling has to be banded, also in all metal hypodermic syringes for the plunger and the lining of the barrel. Many other uses suggest themselves readily, besides those to which the metal has already been placed. Tantalum dividing files, separating disks, matrices, etc. would present distinct advantages over the older instruments.

A few general facts about the metal itself may prove of some interest to dental readers. We have already stated that the pure metal is silver-white in appearance. Its specific gravity is placed all the way from 12.8 to 16.64. Its melting point is very high. According to some authorities it is between 2250° and 2230°; Robert Austen gives the melting point of tantalum as no less than 2910°. Thus, its melting point appears to be higher even than that of platinum, which melts at 2745°. In fact only one metal, tungsten, has a higher melting point.

Reference has also been made to the extraordinary hardness and ductility of this metal. It may be rolled into sheets as hard as the best steel, or drawn into wire. Reheated and hammered tantalum sheets of 1 mm. in thickness are made impervious to the diamond drill, so hard do they become. A drill rotating 5,000 times per minute and working day and night made an impression only 0.25 mm. deep in such a sheet after three days of continuous boring while the diamond showed considerable wear. It will be recalled that heretofore diamond ranked highest in the mineralogist's scale of hardness. Not only that, but the difference in hardness between diamond (10) and the next lower substance on the scale, corundum, (9), is greater than between the latter (9) and the very lowest substance on the scale of hardness, talc (1). This will convey some notion of the hardness of tantalum.

The tensile strength of tantalum is also very high, but as has already been mentioned, an admixture of carbon to the amount of one per cent renders the metal very brittle. It combines with most metals to form alloys, but does not amalgamate with mercury. As has already been mentioned, no acid, except the hydro-fluoric, acts upon tantalum; it is also resistant to the action of fused alkalis.

Its behavior towards heat is also peculiar. It oxydizes superficially when subjected to heat in a compact mass and it burns more completely when heated in the air in the form of thin wire. In the form of wire it also has the peculiar property of taking up hydrogen at yellow heat. It thus absorbs 740 volumes, three-fourths of which is lost in vacuo at red heat. The remainder of the hydrogen is only lost on fusion. The effect of the hydrogen not lost in vacuo is to increase the electrical conductivity of the metal and to render it very brittle.

Ores of tantalum are sparingly distributed in Nature. So far, tantalum has been found in the ores of certain circumscribed localities in Scandinavia, Finland, Western Australia and Southwestern Africa. It is also found in a mineral called columbite in Massachusetts.

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GLEANINGS FROM THE RECENT MEETING OF THE NATIONAL DENTAL ASSOCIATION.*

BY G. E. HAWKINS, D. D. S., CHICAGO.

"Every man is not so much a workman in the world, as he is a suggestion of that he should be."

This trite sentence is quoted from Emerson's essay on Cycles and epitomizes a possible motive that actuates men to form organizations for mutual benefit, be it mental or commercial. That an exchange of ideas between men in the same vocation makes for general advancement and efficiency, cannot be gainsaid. In modern parlance team work is indispensable if any great force is to be exerted toward the ideals for which men have been striving since the dawn of civilization, and no one can stand by the wayside listless and idle as the great procession moves onward and upward, without becoming a mere routine worker. It is therefore of inestimable value for the professional dentist to join hands with his fellow practitioner that he may gain that enthusiasm and alertness of mind which will enable him to grasp the fundamentals so necessary to successfully cope with many of the processes in the art of conservation of the human teeth. The public demands our best and failure is quickly noted. Hence what a heritage we have in our dental societies, dry and uninteresting at times but the net results are beyond calculation; and no self-respecting dentist can habitually absent himself from these associations without eventually losing those ideals which ultimately mean success.

The recent meeting of the National Dental Association in Cleveland was an epoch making event in dental history that will never be effaced from the minds of those permitted to attend. The acme of professional endeavor had its culmination in this gathering. To the local committees all the honor and praise is due for their untiring efforts to make our visit a pleasure and profit. The boat trip on Lake Erie, the trolley ride about the city and the visit to the celebrated poor farm, were nicely planned and carried out.

Having obtained my dental education in this State, always practiced here and never before attending a dental society outside of the state I nearly became obsessed with the idea that practically all the important things pertaining to dentistry either eminated or first saw light in this comparatively small field. But gentlemen since attending the national meeting my dental vision has broadened, and I have come to know that all over this broad land, men are earnestly studying the intricate problems that confront us in an endeavor to solve them, that we may carry to our work a message of such value to mankind that the rewards due the zealous and conscientious worker will be forthcoming. And now in an endeavor to impart to those who did not have the pleasure of being present I shall briefly sketch some of the various phases of this meeting as they impressed me.

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*Read before the North Shore Branch of the Chicago Dental Society September 25, 1911.

ESSAYS.

As a whole the papers were of a high order and there were many to which I should like to call your attention, but time will not permit, and I shall only refer to some of them. A few of the essays were of such interminable length that it was a severe tax upon the patience of the listener to sit through their reading. In passing permit me to say there should be a censorship committee whose duty it would be to examine all papers and those of such extreme length and only relative importance, should be summarized or read by title, as anyone who might care to peruse them at length could do so from the published transactions. One paper upon a subject that it is doubtful if more than ten men out of an audience of two thousand were directly interested, took the essayist two and three quarters hours to read. After a particularly long paper Dr. Don M. Gallie arose and in a manner which might be termed Galliesque, denounced those who occupied so much time with their papers to the exclusion of others who had come with papers to read, and moved that the discussion be closed. It is needless to add that there was no further discussion of that paper.

Dr. P. R. McCullough of Philadelphia in a possible state of mental aberration wrote a paper entitled "Wherein Clinical Evidence is at Variance with Extension for Prevention," criticising some of the Black principles. Dr. W. R. Clack reviewed this paper at great length. It seemed as tho every word must be excoriated and the doctor proceeded to it without fear or favor. When the reading finally ceased Dr. McCullough was called upon to open the discussion but he was not in the room. Whether he had retired overcome with exceeding weariness or was not in attendance I cannot say.

A paper by Dr. O. H. McGhee of Cincinnati entitled "Action on Tooth Structure of Various Colored Medicaments" showed a vast amount of experiment and study. The doctor stated that he and his assistant had spent fifteen hundred hours in laboratory tests. The results were highly commendable and the task worthy of emulation.

"Evolution in Dentistry" by Dr. Safford G. Perry of New York. While the subject was not one to call forth great enthusiasm, yet Dr. Perry has the happy faculty of always making any topic upon which he chooses to write timely and interesting, and this was no exception.

Dr. Geo. H. Wright of Boston came with a paper entitled: "A Group of Deformities of the Nasal Respiratory Tract, Coincident with Dental Irregularities," but with admirable tact he stated that he would only give a review and explain the illustrations. I am certain this will prove to be a valuable contribution to those who are interested in this specialty. The doctor exhibited a new and ingenious instrument for comparative measurements demonstrating changes in the nasal fossa when readjusting the maxillary arch.

"In Memory of Wm. H. Atkinson" was the title of an exceedingly interesting address of welcome by Dr. Chas. R. Butler, former student of that unique character whose marvelous ability and skill won for him an exalted rank in the dental profession.

A valuable contribution to dental literature entitled: "Mistakes Common and Uncommon" by our own C. N. Johnson. This was a gem, scintillating with a brilliancy that only Dr. Johnson can give to anything upon which he chooses to lend his hand.

An exceptionally well prepared paper on the "Necessity for Training of a Prophylaxsis Assistant" was read by Dr. Alfred C. Fones, of Bridgeport, Conn. As a part of the nurse's training who, in this case is a young lady, thirty-two extracted teeth are imbedded in plaster, covered with ink and allowed to dry. She is then given scalers and instructed to thoroughly remove the ink. This is repeated several times until she has acquired a sufficient dexterity to allow her to scale the teeth of a patient. When a patient presents for the first time he is turned over to the nurse who thoroughly cleanses and polishes the teeth, and any treatment for pyorrhea is done by the doctor. To my mind this in many ways is ideal. for the operator would have a clean set of teeth upon which to begin his work; but the training necessary to render a young lady proficient would take considerable time, and familiarity with tooth forms would naturally be required. Dr. Fones says that in his office this method works admirably.

In a discussion of one of the essays, a dentist whose name I did not learn, stated that he did not hesitate to enlarge small root canals by drilling to the apex as he always knew when that point was reached by a slight flinching on the part of the patient. I am heartily glad that my teeth are not in his care.

PUBLIC ORAL HYGIENE SESSION.

As a demonstration of what oral prophalyxis can do for the poor children in congested sections of our great centers of population this was without question the climax of the grand work that has been going on throughout the country for some time. Twenty-eight boys and girls arrayed in their best, from the Marion School, of Cleveland, located in what is known as the Ghetto district, who had been under the surveillance of dentists and a dental nurse for more than a year were upon the rostrum. Their teeth had been filled, abscesses treated and they had been instructed in the proper use of the tooth brush; and the inspiration gained by all present from this practical illustration of what prophylaxis means to the coming generation will be a mighty force. Their faces were bright and happy as Dr. W. G. Ebersole explained the advancement that had been made in their deportment and studies. It seems well nigh incredible that such results could be obtained but ample proof was there in the pupils themselves. It was well worth the journey to attend this one session. This work is only in its infancy and the dental profession must be alive to the situation if we are to receive from the public that recognition which we feel is our due. The dissemination of knowledge on this practical every day subject must come from the dentists; they alone will be held strictly accountable and the verdict will be rendered by a discriminating and thoughtful people.

CLINICS.

Every able bodied dentist is always interested in a clinic; he will travel far and wide to learn something new which may lighten his labors or be of benefit to his patients, and no one was disappointed at this gathering where experts vied with one another in their skill. I have only time to mention a few of the three hundred.

Dr. Henry Barnes makes a gold inlay by packing Ney's soft foil into a cavity, removing and sweating 22k gold plate into it without investing. There are possibilities in this method which may in time supercede the cast inlay but its apparent simplicity is its weakness.

The elimination of pain in excavating hypersensitive cavities by allowing the patient to inhale a small amount of nitrous oxide gas attracted marked attention. Much of this clinic was lost for practical purposes from the fact that no test on a patient was given, altho I am strongly of the opinion this method would be a great aid in many cases and will ere long be used extensively.

PYORRHEA.

Notwithstanding the fact that our self constituted critic and arbiter of morals and ethics, Elbert Hubbard is sure there are only twelve dentists in the world (two of whom he very graciously consigns to Chicago) who know pyorrhea is curable, there were at the national meeting twenty-five clinics on pyorrhea and prophylaxis; and judging from the interest manifested they were not futile. The results in many cases exhibited were remarkable showing that an exhaustive amount of study and labor is going on in the profession to eradicate this insidious disease.

The use of the staple in the porcelain restoration of incisal edges was practically demonstrated by Dr. W. A. Capon of Philadelphia. While perhaps not new it was worthy of attention if for no other reason than witnessing the doctor's technique, which is exceptional.

There were numerous clinics on cast inlays showing the almost unlimited field in which they can be used in various forms of bridge and crown work. Dentists are, if anything, over enthusiastic on the cast inlay but before long the pendulum will swing the other way, and we will settle down to a sane use of this new and valuable method.

The next meeting of the National Association will be held in Washington, D. C. the second week in September, 1912. I hope we can all be there.

PROCEEDINGS OF SOCIETIES.

THE AMERICAN DENTAL SOCIETY OF EUROPE, MEETING AT DRESDEN,

JULY 19, 1911.

DISCUSSION OF THE PAPER BY DR. JENKINS ON "THE INTERNATIONAL EXHIBITION OF HYGIENE AND ITS SIGNIFICANCE FOR DENTISTRY."

Dr. F. F. Robinson (Paris) expressed to Dr. Jenkins his admiration for the masterly manner in which he had placed before the meeting the significance of the International Exhibition on Hygiene to dentistry in general. No words which he could find would be sufficient to eulogize Dr. Jenkin's patient researches which had enabled him to prepare his paper. He had traced the subject from the remotest point, passing in review the achievements of scientists who by their discoveries had evolved out of chaos and ignorance and danger the present standard of enlightened knowledge in connection with the causes of such dreaded scourges as plagues and epidemics. So thorough was the paper that it was difficult, if not impossible, to add anything to it, but there was one point which he might mention. Dr. Jenkins had stated that it was bacteriology, through Pasteur and Koch, and their immediate associates, which revealed to his mind the first rational theory of disease and explained the mystery of putrefaction and decay. By Dr. Miller's researches on the micro-organisms present in the mouth, dentistry was brought into the field, and dental literature today was rich in the proofs of important work done by many an enthusiastic colleague who had followed in Dr. Miller's footsteps, inspired by his scientific experiments, such men as Bödecker, Michaels, Cloquet, Hopewell Smith, Goadby, and many others, whose names were familiar in that special kind of work. The use of the X-rays in diagnosis, the demonstrations of radiography, and photo-micrographs, brought forward by distinguished microscopists at previous meetings, and by Dr. Cryer at the meeting in Madrid, had quickened the desire to reach higher standards of professional knowledge than was possible of attainment by many of their predecessors. There was also a natural desire on the part of the profession to acquaint the world at large with ways and means of preventing in a practical manner the ravages of disease in the oral cavity. Cleanliness and hygiene were preached as a moral obligation to oneself and one's offspring, and the dental text "Clean teeth do not decay" was found posted up in almost all schools. In the Exhibition would be found proofs of the strenuous efforts made to combat dental decay among the destitue and poorer classes, and today many Dental Clinics were working for the benefit of the child, and in that connection Dr. Jessen was amongst the leaders. Then by the initiative of that warm-hearted and genial colleague, Dr. George Cunningham of Cambridge, the work of the School Dentists Society had been established in England, where pioneering work had been done both by Municipalities and private benefactors. Private clinics had been established by many eminent practitioners, and two members of the Society, Dr. W. S. Davenport and Dr. George Hayes were doing a very considerable amount of hard work in Paris, chiefly in connection with children of charitable Institutions. Photographs of clinics were to be found showing the dentist at work and the tiny patients awaiting their turn, and also the nurses who were ever ready to help the practitioner. Some remarkable exhibits had been sent to the Exhibition by the British Dental Association jointly with the School Dentists Society, which exhibits added to those sent by Messrs. Ash showed the strenuous work being done in England in advancing the cause of dental hygiene amongst the poorer classes. America, Sweden, France, and all civilized countries were also working along the same line. Therefore he thought the Society owed a debt of thanks to Dr. Jenkins for having brought forward a resume of the great work in connection with hygiene in the practical assistance of humanity in its highest sense.

ILLINOIS STATE DENTAL SOCIETY.

DISCUSSION OF DR. KNOWLES PAPER.

THE PRESENT STATUS OF THE GOLD INLAY.

DR. W. B. TYM, Charleston:

My personal knowledge of the work done by the early workers in the gold inlay field is limited, but it occurs to me that the work and experience in the working of gold inlays in the past five years may be credited largely to members of the Illinois State Dental Society.

My first experience with gold inlays was in January, 1906, while I was yet in college, and they were of the hollow variety, the matrix and outer surface being swaged and burnished and reinforced with solder.

It has been my privilege to see some of these inlays a number of times since then, and though they are extremely large, they appear to have performed their duty perfectly. Of course, I am only speaking for the few that came under my observation.

The matrix method, as stated by the essayist, is not as accurate as the cast method, but even at that, I read where the matrix method inlays have given excellent service for from ten to fifteen years. Some of these I believe, were inserted by Dr. W. V. B. Ames.

Since the advent of the casting method, it seems possible to restore teeth to their usefulness with a greater degree of satisfaction to both patient and dentist. If the proper precautions are used the cast gold inlay eliminates to a large per cent, the use of the gold shell crown, which in itself is a boon to humanity.

I agree with the essayist that, to those men who have given us such valuable assistance in this branch of dentistry, we owe our thanks, and we must strive to give something in return for what we have received.

As to the method of combining the two materials, porcelain and gold, it has never proven very satisfactory in my hands. The shadow problem bothered me, and even after I had obtained fairly satisfactory results, if the bite was end to end or near it, there is sometimes enough hard usage to slightly burnish or batter the incisal portion of the gold, and thus fracture the porcelain portion, a result that is very unsatisfactory to me.

I have never used this method except in large cavities in the anterior teeth, and it may be that my failures were due to a lack of skill or insufficient understanding of the technic.

There are many cavities in the teeth in which I place gold foil fillings, because I think they are the best. If I were to place an inlay in these cavities, either gold or porcelain, it would necessitate the destruction of a great deal of tooth structure that could otherwise be saved.

As to the method of making a model for obtaining the wax inlay or model, I have not used it as I have been able to get satisfactory results by working directly form the tooth. True, some time might be saved and the patient be kept a shorter period, but it seems to me that the fewer steps used, the less the liability of distortions and possibly misfits. However, a dentist should use the method whereby he obtains the best results, whether it seems as good or not to the other fellow as do his own methods.

DR. O. L. FRAZEE, Springfield:

Dr. Knowles has written a most excellent and comprehensive paper, but I must say that he has not definitely stated his conclusions as to the present status of the gold inlay. He has permitted us the inference, however, in saying that the majority of his practice is inlay work.

We must conclude, then, that this radical treatment, as the essayist puts it, is by far the most successful, or shall we say conservative method of the filling of carious teeth?

My own experience has confirmed me in the feeling that the gold inlay should be confined as a filling material to large restorations, principally in molars and bicuspids, or step-cavities in anterior teeth, where the force of mastication requires the protection of frail walls, and which in many cases it would otherwise be necessary to crown, or perhaps in buccal cavities reaching below the gum line, making the application of the dam impossible, or too painful.

I must confess that as a time saver or as a boon to the patient, the inlay, except in the cases mentioned, has not proven in my hands an equal to the gold filling, or perhaps the porcelain inlay.

The inlay has impressed on us one thing, however, and that is, cavity preparation along the lines of extension, as it is practically impossible to prepare cavities for an inlay without extending them far enough beyond the contact point to make exposure of the margins inevitable.

The essayist speaks of the inaccessible cavity. Except in the distal of a second molar perhaps, if we give the same attention to cavity preparation for the filling that we do for the inlay, there will be fewer inaccessible cavities.

The cemented joint, as suggested by the essayist, is strong or weak according to the perfection attained in the fitting of the inlay, but in view of the disposition of metals in larger bodies in cooling, to slightly change form can a perfect joint be secured except in cavities having a perfect outline which will permit the inlay to drop just a little beyond the point as determined by the wax form. Practically they do not do so, as I almost invariably am compelled to grind slightly for occlusion.

The gold inlay because of its integral strength affords a better protection from the force of mastication than any other filling, and to my mind that is its chief value. In all other qualities except color it falls below the gold foil and amalgam in tooth saving qualities. I cannot believe that a cemented margin, however well fitted, can remain so perfect and resist the penetration of caries in the mouths of individuals who are disposed to be careless, as a well inserted gold foil or the much-decried amalgam.

The safety valve of the inlay is the exposed margin and the protecting gum, but on equal terms with the foil and amalgam I am disposed to give them the preference.

Cement is somewhat erratic in its action in different individuals, as the same cement will give much better service in some mouths than in others, but it has been my personal observation that in a mouth in which cement fillings lose bulk rapidly, fillings of other materials are not secure. The cause for this may be explained by scientific investigation, but the fact remains.

The gold inlay has come to stay. It has created a place for itself peculiarly its own. It has helped to widen the field of usefulness of the dental profession, but if a man devotes or restricts his practice to the construction of gold inlays to the exclusion of gold foil and amalgam, I am strongly inclined to believe that he is not giving the best service to his patients, and should he retain their confidence, he will have many apologies as well as crowns to make in a few years.

Dr. J. N. Crouse, Chicago:

I am only going to speak of one or two phases not touched upon by the paper, and one I consider very important is the filling of these big cavities in part with some material—I use temporary stopping. I fill two thirds of the cavity, leave plenty of margin for an inlay to be sealed in, and use Taggart's new wax, which is the best I have ever seen, waxing up my piece as I want my gold to be, then removing that. I take a piece of platinum and make two or three loops, stick them into the wax at two or three different points, take out the temporary stopping, and set it with cement. I have a cement filling in there with gold cover. I have done away with a great lot of gold that shrinks more or less, so that I have less gold for shrinkage; I have got more cement in the cavity, which is the best kind of filling. That is the only point I want to discuss except to call your attention to the fact that the members of the dental profession owe Dr. Taggart a debt of gratitude. They owe him more than that. They owe him compensation, and that is what I want to talk about at this time.

After examining the testimony that was given in the case, where the suit is pending, namely in Washington, and after looking the ground over carefully, the next day I took a steamer for Europe in order to get a rest. On that steamer I cooked up my plan. I said to myself, here is a chance to kill two birds with one stone. We will organize the dental profession into a new protective association and thereby create a fund which will draw interest and fix it in such a way that it can never be disturbed, except the income from it, and that income will be large enough to take care of the necessary matters of litigation. That is to be my monument. That is the first step. The question arises, How are we going to do it? I went to Dr. Taggart after I had my plan thought out for two months, and approached him and his attorney in regard to the matter. Certain terms were suggested, and I battered them down to what I considered was fair to Dr. Taggart. He started with fifty dollars, and I suggested forty dollars to his attorney. This figure was discussed for a considerable time. After much arguing on both sides, I got Dr. Taggart to sign on the basis of fifteen dollars royalty, and I have a contract with him whereby he is not allowed to make terms except through the Dental Protective Association. In order to get this right for fifteen dollars members of the dental profession must become members of the Dental Protective Association. This association has saved the dental profession millions of dollars, and it ought to be kept alive, and the only way to keep it alive is to add new members to it. It is a great proposition, for every dental student that graduates from a dental college will have to learn to do inlay work. In order to get these things so that they will not be disturbed, they must join the Dental Protective Association. That takes ten dollars, and the additional fifteen dollars for Dr. Taggart makes a total of twenty-five dollars. That is cheap enough. By this plan each member of the Dental Protective Association is giving Dr. Taggart fifteen dollars. I have got money enough to put Dr. Taggart on easy street, and largely through the efforts of the members of the Dental Protective Association, particularly the old members. We are not going to stop at that. We will organize the State of Illinois into a protective association, and every man must join or else he will render himself liable to a suit if he practices the Taggart method. It is the first time I have had this matter shaped up so that it is not a matter of voluntary effort on your part. It is a matter of force, because Dr. Taggart is going to win his suit. I say that with a good deal of assurance because I have examined the testimony very carefully, and I have spent much time and money in getting up the records, and I am as positive that he is going to win as I am that I am standing here. You understand, it is ten dollars for membership in the protective association, and fifteen dollars additional will go to Dr. Taggart, and this is to come through me as chairman of the association. There will be a by-law for you to sign, which has been sent to every dentist in Illinois, and I hope those of you who have not joined the protective association will do so as soon as possible. This is probably the last part of my life work in organizing the protective association in a way that it will be permanent. This twenty-five dollars will give you the right to use all of Dr. Taggart's inventions. It gives you the right to use any instrument you are now using. You need not buy Dr. Taggart's instrument if you do not want to. If you wait until Dr. Taggart has won his law suit, sustaining his patents, you cannot buy and use the infringing instrument, but you can use the instrument you now have. You can buy the Taggart instrument for twenty-five dollars less than the price of non-members, according to this agreement through the Dental Protective Association, but you must be a member of the Protective Association to do it.

DR. BLAIR:

I believe it is the sense of the members of the Illinois State Dental Society and of the profession throughout this state that Dr. Taggart should be remunerated for the wonderful work he has done. I want to ask Dr. Crouse one question in connection with this, namely, if the profession respond as they should to the suggestion he makes of paying this fifteen dollars through the protective association to Dr. Taggart, what will Dr. Taggart receive in round numbers for the work he has done?

Dr. Crouse:

Well, Dr. Taggart will receive fifteen times thirty thousand, or in round numbers, about four hundred and fifty thousand dollars.

I wanted to make these statements to you, because so many do not understand the situation.

Dr. James E. Hancock, Chicago:

For the benefit of a few doubting Thomases as to the efficiency of cement, I would like to make one statement. About four years ago I had the misfortune to remove an inlay which had been previously put in by Dr. Ames. It was inserted some fifteen years ago, and I found, to my surprise, it was one of the hardest things I have ever had to do to take that inlay out. It was put in by the old burnishing method, and the margins seemed to be in perfect condition, and the tooth was perfectly preserved for that number of years, and I want those who doubt the efficiency of cement to remember that. Cement is not so inefficient as we have sometimes supposed, and when it is inefficient I believe it is largely due to the faulty manipulation of the operator.

Dr. Knowles (closing the discussion):

Dr. Frazee referred to the question of cement, which, of course, is the vital point in connection with the inlay. An inlay should be set with a good mix of cement. It is hard to tell whether we get a good mix or not, but we will know it because of failure if the inlay comes out. If the cement is not properly mixed, you will have a failure. I am very strong on this point. I have worked in them for several years, and whenever they fail, in the majority of cases there is a reason for it, but I am convinced that an inlay made to fit a cavity, prepared along mechanical lines, with a good mix of cement, comes as near being an ideal filling material as anything we can use in the larger proportion of casess. What we want are results. In my hands I can get these results with inlays. I have amputated teeth containing inlays a number of times where I was using a tooth as an abutment for a bridge, and in each case that had been in for from four to ten years the cement lying under the inlay was perfect. The cement wears out around the margin of the inlay, but only as deep as the margin is wide, and I am convinced of this fact, assuming that the cement was well mixed, that it stops at that point, and I have some doubt whether caries is going to take place to any greater extent under the inlay than under a gold foil filling.

Dr. Frazee referred to the question of putting an inlay in one place and not in another. Now, if the principle is right to put an inlay in one place, it is right in the majority of places. But I doubt whether it is necessary to do as extensive cutting as some operators are in the habit of doing. I think in the majority of places we will find that we will want to do extension in the preparation of cavities, more or less. Dr. Jenkins in one of his papers contributed a number of years ago laid that down as one of his principal points in inlay work, namely, to have liberal open cavities. I think you will agree with me that in many cavities, if you are going to make a gold foil filling and you have a rather small place, and an effort is made to keep it as small as possible, if you will open it liberally, you will find caries that you would not find otherwise. As to the question of cement again, some men in setting an inlay and after pushing it to place and holding it there half a minute, keep a napkin dry in the mouth for five minutes. If the cement is mixed, it will begin to set the crystals in a minute after you have set the inlay. As an experiment, I wish to show you how cement acts. Make a mix of cement, roll it up in the form of a pencil, cut it in two, let one piece dry in the air, and drop the other one in water, and the one in the water will get harder. It requires moisture, and it is not as good when it is kept dry for any length of time.

I referred to porcelain inlays in my paper. I was rather misunderstood with regard to the question of porcelain. I think we are all agreed now that we do not want porcelain on a hard occluding surface where there is much strain, and I do not want you to understand that I combine porcelain with the gold. That is something that will come up but very few times.

As to the question of a gold foil filling versus a porcelain inlay in the matter of color, I think in nine cases out of ten where there is a gold filling in front of the mouth, if the filling comes to the labial surface, it can be seen a distance of ten feet by anyone. It will look like a dark decayed place, whereas the porcelain filling is invisible at a distance of six feet if you have used a spatula that does not discolor the cement.

I feel naturally a personal interest in what has been done in the matter of inlay work, and I feel more strongly than I can express myself here or in my paper, that we do not realize, many of us, the debt of gratitude we owe to Dr. W. H. Taggart for having given to us a way in which to practice a better standard of dentistry, and make better inlays than we could have done without our cast inlay.

DISCUSSION ON DR. JONES' PAPER.

Dr. G. W. Cook, Chicago:

The paper of Dr. Jones' is rather a hard one to discuss. But if one reads the paper carefully, and studies the points with due consideration, he will find there is much valuable suggestive work in what he has presented. I think the essayist has made a mistake in not thoroughly studying and digesting Miller's work. Miller distinctively states that any decay is a chemico-parasitical process, consisting of two distinctively marked stages, decalcification or softening of the tissues, and the dissolution of the softened residue.

The essayist's explanation of the changes that take place in carbohydrates is similar to the one that Miller gave in his work almost thirty years ago. Dr. Jones has elaborated on some of the chemical changes that take place in the splitting of carbohydrates, and he has added something to the physical explanation of this process that was not very well known in the days of Miller's work. The essayist admits however that he has not carried on these experiments to the extent that they should have been. Every scientific investigator cannot clear up, in his mind, a sufficient number of points to fully explain all of the phenomena that he observes in a work of this nature. We all must admit that it is a difficult thing for any one to take another's experiments and duplicate them and find the explanation to his hypothesis. He states that there are many who doubt Miller's explanation of dental caries. That may be easily explained when we consider that for twenty-five years no one has gone over the work of Miller so closely and followed every detail of his experiments with such accuracy as Miller himself did. The capable men in laboratory technology have busied themselves more profoundly with the explanation of problems that they considered of more importance than the decay of teeth. To make a step in advance over that of Miller's work means many years of laboratory work, both in chemistry and physical biology.

Dr. Jones has busied himself in his investigations with the problems of the mucous constituents of the saliva, as well as the mucoid substance that attaches itself to the teeth, and now so well known throughout the dental world as caries plaques of Black. The problem that principally attracted the essayist is one of the problems that has a vast deal to do with all of the problems pertaining to the bacteriological questions of the oral cavity.

Much has been said of the potassium cyanide and the possible inhibitory effect it might have on bacteria in the mouth, and the effect it might possibly have in influencing the formation of the plaques. This phase of the subject is one that has attracted the attention of Waugh, Bunting, and many others. I think it should be understood that the first thing to determine is whether these plaques are the result of the agglutinating processes from the bacterial cell, or whether it is a process due to the coagulative properties of the saliva itself. There is a strong tendency, however, to believe that the attachment of bacteria to the surfaces of the teeth is one that comes solely, or practically so at least, from the mucus of the mucous membrane. I have suspended teeth in the mixed saliva, freed from bacteria, and then inoculated the saliva in which the teeth had been suspended with a particular species of bacteria. to find that these bacteria would colonize around the surfaces of the teeth and be held quite firmly to the tooth structure. I also discovered one thing, that I could have a disintegration of the surface of the enamel only with the facultative aerobic bacteria. This led me to the conclusion that possibly the saliva, as a media for bacteria, was quite essential to the production of the destructive process on the enamel of teeth. And I am free to confess that this is my firm belief.

Carious processes on tooth structure in vitro, from the ordinary culture media differ materially from the carious process that may be carried on when saliva as a medium is used. All of the analyses that have been made of mucin have the chemical elements as follows: Mucin from mucous membrane C48.26 H6.91 N10.7 S1.4. The mucin from the submaxillary gland has more carbon and less sulphur, in fact it varies to such an extent that it can be said that all mucus or mucoid substances are at least physically different in their molecular structure; therefore it is possible for us to make the great error of judging all mucus as the same. The submaxillary mucins are very easily changed by dilute alkalies, such as lime-water, while the mucus from the tendons is not affected. When a five percent of potassium hydrate is allowed to act on submaxillary mucus there is precipitated an alkaline albuminate, which is very similar to proteose and peptones. There are also found one or more substances which give an acid reaction with reducing agents. Thus we would infer that we have a mucus of a nitrogenous carbohydrate constituent. If five-tenths of one per cent of sodium chloride be added to a mucin solution and acidified with acetic acid, without giving a precipitate, it can be precipitated with tannic acid or with potassium ferrocyanide. This precipitate will become very ropy and sticky. So it is possible with this process of reasoning to say that, if the saliva happens to contain all of these elements, as normal constituents of the saliva, or if introduced by the food product, the tooth acting as a negative substance, it might gather a clump of bacteria and attach itself to the inaccessible surfaces of the teeth, thus forming a dializing membrane, upon which the essayist has so forcefully laid a great deal of stress.

The investigations of Loeb, and many others, have brought out some interesting facts, with reference to the important part that calcium may play in all of these processes. The lactic acid bacillus confined in colloidial sacks will attract the attention of the calcium in the solution to neutralize their products. According to my own experiments, I have demonstrated that the acid-forming bacteria will form a great deal more acid products in the presence of calcium, added in limited quantities, than they will if the calcium is not added to neutralize their acid products. This may be a fundamental step in the action of bacteria on tooth structure. There may be another fundamental importance to this demonstrated fact, and that is when the calcium is present in over five-tenths of one per cent the function of the acid-forming bacteria comes almost to a standstill until the neutralizing process ceases. This has an important bearing on the point brought out in the work of the essayist.

The question is frequently asked, What are the bacterial plaques composed of? We can most likely say, with a degree of certainty, that they are a monobasic acid, or at least contain a monobasic acid, capable of being carried through a process of hydration and thus be easily made into a permeable membrance.

As was early stated in this discussion, I think if one will study the fundamental principles of this paper and its bearing upon the researches of Miller and Black, it cannot help being considered a highly commendable contribution to the subject under discussion. There is one point the essayist has touched upon and that is the retention of food in the mouth for a long enough time to triturate and insalivate, and its effect upon the general health of the mucous membrane and tooth structure. The ancient philosophers on hygiene propounded a maxim that should never be lost sight of, if our modern physiological researches are correct, that we should masticate every mouthful of food at least seventy-seven times before we swallow it. Of course when this maxim was taught centuries and centuries ago, the preparation of food in the mouth was of far more importance than it is at the present time. We have a far more scientific knowledge as to how material should be prepared to make it most easily digested and assimilated when taken as food. Fletcherism is undoubtedly of some importance to a large class of people who do not know the value and effects of food any more than they do the value of dress and its comforting influences; and as a scientific problem it cannot be discussed until we know more of just what really does take place in the mouth when food is placed there, as we at the present day prepare it for digestion. We know of only one action but we do not know all the important physiological functions of that action, neither do we know what important part bacteria play in that function.

According to the sweeping statement that the essayist has made with reference to the cleansing of the mouth, he has undoubtedly arrived to the same conclusion that every one arrives at who deals with the bacteriological processes of antiseptics and disinfectants in vitro; that antiseptics and disinfectants, and especially the latter, have no function when it comes to testing their efficiency. I must beg leave to differ with the essayist on this point, inasmuch as I have gone over the field that the essayist has more times than he is years old, and have not only studied the effects of agents on bacteria, but I have studied the effects of agents on the normal and abnormal epithelial structure of the oral cavity, as well as other mucous surfaces, and it would be just as much out of place for me to say that soap was no better for cleansing the hand than water itself. I further come to the conclusion that in the main the essayist is right, because up to the present time we have looked too much to agents that are solely oxidizing in the process of the destruction of bacteria. A long list has been given by all bacteriologists of agents that they state are either bactericidal or antiseptic in their action, all of which is true, especially when we consider the methods and means they had to attain the results. But here is an axiom that I venture to offer, that any agent that has any special effect upon the mucous surfaces or the tissues in general will almost invariably do more harm by assisting the bacteria that are not killed to live and reproduce their species on the tissues than they would without the agent. The essayist would be inclined to discourage our efforts more in this direction than he would to encourage them. All remedies are more or less empirical, because as a matter of fact our true knowledge of how agents affect tissues is so limited that we might to a degree cut out practically all therapeutic agents and accomplish the same results in the alleviation of pain and disease. I heard the late John J. R. Patrick once say that we already knew two specific agents, one was that sulphur would cure the itch and quinine would cure malaria. They are both infectious diseases and we must depend upon the agents for their cure. It would not be hard for me to name at least three mouth-washes that will have a decided detrimental effect upon bacteria in the oral cavity, without in any way affecting the mucous membrane. The principal foundation of agents for use in the oral cavity, or any other mucous surface, should not contain an agent that will act free and independent as an oxidizing substance, especially on animal tissue. I am convinced, with the experiments and the study I have made, that the time is not far distant when there will be a number of agents that can be successfully used to remove bacteria from the oral cavity without any detriment to the mucous surfaces. All that needs to be remembered is that bacterium is a vegetable organic substance and that animal tissues especially the epithelial cells, react very differently to agents than do vegetable substances.

This brings up our previous statement with reference to the effect that calcium has on fermentative processes, and that this fermentation was important because the calcium unquestionably neutralized the acids formed and kept them within limited subjectiveness. More than a quarter of a century ago quicklime and milk of lime were used as disinfectants without any harmful effects upon the animal tissue. As soon as the calcium present came in contact with bacteria it formed a calcium hydroxide. Calcium hydroxide in the solution necessary to have a destructive influence upon bacteria has no detrimental effect upon normal tissue cells, in fact apparently in the presence of pathogenic bacteria it assists the tissues in acting bacteriolytically. It is no easy task, I can assure you, to make up a combination of calcium that will obey the mandate of the experimentor in forming a hydrolytic cleavage process on bacterial cell life, but it has been done, and I think upon this line of experiments we need not look so discouragingly as the essayist's sweeping statement, that agents are of no value. When we remember that mucus from the mucous membrane contains 48.26 of carbon and approximately about 7 per cent of hydrogen and 10 per cent of nitrogen, we will have to build our antiseptics with a better understanding of what retains and holds in group formation the bacterial colony.

DISCUSSION OF DR. GREEN'S PAPER.

Dr. C. R. E. Koch, Chicago:

I want to say simply this: When the legislative committee called on the Board of Administration, they desired to impress the board with the fact that they were not coming in a complaining manner. However, if the board had this impression the members of the legislative committee regret this very much. They went there to appeal to intelligent men, laying before this board the urgency of the cause and they were glad to learn from them that they had the authority to do these things to the extent that the then amount of appropriation available might do. I am delighted to learn that they are giving serious consideration to the needs of the Lincoln Institution, which is a peculiar institution and not as attractive perhaps as some others for dental work. The children are not of strong mind, and perhaps on that account need greater care and greater consideration. This thought occurred to our committee that there was a field which would offer greater opportunities for scientific research and development than any other institution for one who might be fortunate enough to be selected as interne or resident dentist. There is only one item I would emphasize, and that is, that the dental service in these institutions will be better, will be more reliable, and fraught with greater good if a regular house dentist were employed than if some dentist in the town should be engaged to take care of the needs of the patients there, out of the time when his private practice would not be pressing him. They should have first care and first thought, and first devotion of his time, because if anybody needs special care and protection it is the children that are the wards of the state.

I have talked about the children from the other charitable institutions, but when we get through with the charitable institutions, there are the penal institutions in this state which are not under the control of the Board of Administration, and there is one penal institution in particular that takes care of the youths who are accused or have been convicted of crime. I believe it is as much due to them to see that they shall have proper care and be treated in a humanitarian way, if a penal institution is to be reclamatory, and not merely a punitive institution. My own notion with reference to prisons is that there is not very much good in the doctrine of eternal punishment dealt out in these institutions. Punishment is all right, but we should carry it on in a humanitarian way, so that when the punitive period is over the individual shall be prepared to go back to his own vocation with the feeling that he has a chance to make something of himself. I believe neglect in these institutions should be remedied. We know that in one of them there is a local dentist taking care of the inmates very acceptably, but that only goes as far as the patient is able to pay or his friends are able to pay for him. The poor devil that has no friends to pay for him is neglected, and that ought not to be so.

I have nothing further to say excepting to express on behalf of the legislative committee, to the Board of Administration, and particularly to Dr Green, our thanks for giving us an opportunity and for giving you an opportunity to meet him face to face.

Dr. G. H. Kopperl, Jacksonville:

It is only proper for me to report that our institutions at Jacksonville are highly in favor of this movement, and are anxious that it should be installed, and I for one hope that the dentist who is appointed will keep a tabulated report of his work and let the society have the benefit of it, because I believe there are wonderful possibilities.

Dr. George A. Zeller, Superintendent of the Peoria Hospital for the Insane, Peoria:

Mr. President and members of the Illinois State Dental Society: I feel that Dr. Green has covered the ground very thoroughly, and yet I am in a position to indicate to this society something of the magnitude of the accumulated evidence of neglect in the care of the teeth of the insane patients in Illinois up to a few years ago. The creation of the position of dentist in our instittuion was almost coequal with the one at Kankakee, and we had at the asylum for the incurable of Illinois three thousand inmates who had been in the almshouses and who had been in the chronic wards of other institutions, and in 1906 we created the position of dentist. That position is still served on the plan of one-half day each week, or fifty-two half days in a year and the dentist is always there and makes a number of other trips that are not a part of his regular duty, and I want to show you officially what can be accomplished for the teeth of two thousand insane people at the rate of one-half day a week. It was found in the first year where there were cases to report that he treated thirteen hundred patients in the institution, and he extracted eighteen hundred badly decayed teeth, hopelessly decayed. He cleaned six hundred teeth during the year, and filled with amalgam fifty-six, and made cement fillings in eighty-two, removed five pulps, treated three abscesses, and filled five roots. That work has gone on. That was the clean-up of the accumulation of years, though the position of dentist has been continued on that basis. We have been waiting for the time when a dental interne will come to us, but at the present time the best we can do is a visiting dentist and pay him a reasonable compensation. We could not hope, with our limited funds, to ask a competent dentist who is worth three or four or five thousand dollars a year to take up residence with us, or ask him to do the work for a thousand or twelve hundred dollars. Nevertheless, I believe that the interne system will be a solution of this problem of the care of the teeth of the insane.

There are other matters of interest awaiting your consideration, but I want to say briefly that I have passed through one of the pioneer periods in dentistry in this country. It was my good fortune to be stationed for three years in the tropics, and I saw the meagre attention which the soldiers' teeth received. It was my faithful duty to extract teeth that were comparatively healthy to save a soldier from suffering. I remember very well sending to Manila for a dentist and offering him one hundred dollars in gold and could secure for him fifteen hundred dollars worth of work among the natives if he would assume to take care of the teeth, but he declined the proposition. I saw the introduction of the dental corps in the United States Army that has now become established just as firmly as the medical department is. I say, Why not give the insane the same attention that we give to the normal residents of a community, and which they have a right to expect even within the walls of an insane asylum, and I was very glad to hear Dr. Green say that we are so near a realization of what we really need in the institutions of the state, and that is a resident dentist. I thank you.

DR. ARTHUR D. BLACK, Chicago:

I want to take a moment or two to pay tribute to the effectiveness of the work that is being done by the State Board of Administration. To cite a particular example: on the second Tuesday in April fifteen Chicago dentists, with their assistants, spent the day in the examination of the teeth of the children at the State Training Schools for Boys and Girls at St. Charles and Geneva. On Wednesday Dr. Koch mailed to Dr. Green and Governor Deneen a report of the examination. On Friday Dr. Koch received letters stating that the reports had been received. On next Tuesday, a week from the day we visited these institutions, Dr. Koch received a letter from Dr. Green stating that the Board of Administration had considered the matter and had voted to employ a dentist in these institutions at a salary of one hundred dollars per month, with maintenance; all this being done in one week. (Applause.) Could we ask for a State Board of Administration that will treat us better and will treat the children and the people of the State of Illinois better than that? And I want to pay my personal tribute to Dr. Green for the splendid interest he has taken in the dental phase of this question particularly, and for the fairness with which he is handling this whole proposition for the people of the State of Illinois.

THE PRESIDENT:

In behalf of the Illinois State Dental Society, we thank you, Dr. Green, for the interest you have taken in this work, and we feel that the wards of the state are in good hands when men like yourself and Dr. Zeller are taking part in the administration of the affairs of the state. Both of you are certainly doing a great work, and you are to be commended.

DISCUSSION ON THE ADDRESS OF DR. EVANS.

DR. C. N. JOHNSON, Chicago:

To follow a speaker such as we have listened to is, at the same time, an honor and an embarrassment. Dr. Evans has the faculty of entertaining an audience in a manner that can be approached by no other speaker to whom I have ever listened.

He has covered this question in a masterly, broad and philanthropic way, and I am going to add only a few words to the sentiments he has given you tonight. He spoke of the evils of neglect of the teeth. I want to call your attention to the extent of the conditions that confront us in the public schools of this country, as I imagine the public schools of other communities are similar to the public schools of Chicago. In our examination of the children of these schools we have found that ninety-seven per cent of the children of these schools we have examined are today in need of dental service. In other examinations that have been made in different parts of the country where adequate examination has been conducted, it has been found that in no instance is the percentage lower than ninety. What does that mean for the coming people of this country? It means that ninety-seven per cent, or whatever the percentage may be, of the children who are attending public schools are handicapped in their efforts to make a fair fight in the world for position, for health, and everything else that goes to make life worth living. If that is true, we have a problem presented to us that you and I as dentists must face, and that the public, on the other hand, must take cognizance of. A child that has imperfect teeth cannot masticate its food properly. Imperfect mastication leads to bad digestion; bad digestion leads to faulty nutrition, and faulty nutrition leads to bad nourishment. A badly nourished child, as Dr. Evans has told you, is handicapped in his study, and not only that, a badly nourished child begins to crave stimulants. When the system is not fed by normal assimilation of food, that system will crave something to take the place of it, and I venture the assertion that if the history of some of the drunkards of our country was followed back in a logical manner, it might be traced in the first instance to defective teeth in childhood; and these are questions you and I must study.

Dr. Evans has pointed out to you the factors of contagion. Not only does the factor of contagion enter into this matter, but the factor of poisoning of the system outside of contagion, the constant poisoning of the system through the influence of neglected teeth, and that is a handicap on the growth of the child. The neglect of the teeth also enters into the factor of making grades in schools, as has been amply demonstrated in a test case in the City of Cleveland. In that city these tests are just now being concluded. The final test took place yesterday in that city, and while I do not know the result, enough is already known to prove to us that it is possible by the simple factor of proper dental service to the children of the schools to lessen the length of time these children take to make their grades. If that is true, dental service is a civic economy, and that is a point we must emphasize in the communities in which we hope to introduce dental service in the public schools. If we can prove to our municipalities that by proper care of the children's teeth we can lessen the length of school terms for these children, we can prove that that will lessen the expense of teaching children, and it is not only a matter of developing better manhood and womanhood, but it is a matter of pure dollars and cents, and that is about the only plea you can make to the municipalities in some places.

Something has been said in the past about the difficulties of gaining the consent of school boards to dental inspection. There are many ways of getting at that, but if we present to them an intelligent argument, or an argument based on actual demonstrations, such as have taken place in the City of Cleveland, I think we will have no difficulty whatever in gaining the consent of the school boards to make these examinations. But back of all that there is something else that must be done, and that something else goes farther than municipalities; it goes into the homes, and in the homes the individual of all others who is potent in any reform is the mother of that home, and, Mr. President, today I heard one of the good mothers of Peoria make a remark at the lunch table which I want to quote to this audience, because it is significant. We were discussing some of the evils of today in this country of ours which we love, some of the evils of graft and bad politics, and one individual was mentioning one kind of reform, or one way out of the dilemma, and another was mentioning another and at last this dear little mother made this remark: "The only way to get reform is for the mothers of the country to raise better sons." (Applause.)

Mr. President, if we fail in getting the endorsement of the school bords, let us go to the mothers of this country, and then we will have a force behind us that will help on this movement, and if this movement is carried to its fullest fruition we will develop in this country a generation in the years to come that will not only be more effective physically, financially, mentally, but more effective morally because you cannot degrade the human system in a physical or mental way without degrading it in a moral way, and bringing it right down to the final issue of the case, it is a matter not only of the physical condition of the child that we are raising, but it is a matter of mentality and morals.

Dr. R. A. Kerr, Peoria:

Some time ago the medical society of this city was informed that the Illinois Dental Society was to meet here, and asked the medical society to name some one to discuss Dr. Evans' paper. A few days ago I was asked to perform that function. I was much pleased when I finally found out what the subject of Dr. Evans' paper would be. More especially so because I knew it would be a masterpiece in its line, and also from the fact that we are just on the point of introducing here medical inspection of school children. It has taken one year of work in order to bring this about.

Owing to the lateness of the hour, I will not go into any special discussion of the general principles of this subject or the general needs, or the arguments for medical inspection. When I say medical inspection, of course I include dental inspection, and in the remarks I make I want to be somewhat personal and somewhat local.

Every community, especially an old community such as this, is inclined to be rather conservative. They are rather inclined to shy at new things, at innovations, and our community here is no exception to the rule. Not only the community, but the school boards were very slow to adopt anything along this line. It took a year, I say, of work in order to get the thing as far as it is at the present time. But what I have to say here tonight will be more especially in trying to convince the teachers and any parents that may be present that this subject is a vital one and of great importance. I shall outline in a limited degree the work that we propose to do, and what has been accomplished so far. About a year ago our city superintendent of schools, who is a man thoroughly up to date, a progressive man in every way, conceived the idea of establishing medical inspection in the Peoria schools. He brought this matter to the attention of the school board; the school board asked the city medical society to meet with it and discuss the subject and explain the matter to them, and tell them something of what had been done in other cities. I was made chairman of that committee, met the school board, and discussed this matter. There was a committee appointed, and in a year that committee made an official report and we are on the point of beginning inspection. But no inspection has as yet been made. In order to get this inspection established, it was necessary for us to have a sufficient number of physicians to volunteer their services without compensation for the balance of this year, and we have secured a sufficient number and could have secured many more if necessary. Physicians have come to the rescue of the school board. The inspection we propose to make at the present time is not extensive. It has relation, however, to diseases not classed as contagious. The line, so far as contagious diseases is concerned, has been pretty thoroughly drawn in the past by the Board of Health. We have very few contagious diseases in Peoria. It is a rare thing to have more than half a dozen cases of contagious diseases in the city at one time. The health department here has been very able, so far as controlling that part of the trouble is concerned. The things we propose to turn our attention to more especially are the chronic conditions, such as defects of teeth, sight, hearing; also adenoids, enlarged tonsils, and then the other defects that may present themselves. We propose to visit these schools once a week. Each physician in charge of a school will inspect the school children in that school once a week, and we have formulated a report to be made, and in addition to that have copied from the health department of Pasadena the following things to be observed by teachers and reported to physicians: Posture of the child, its nutrition, or its color whether good or not; mental activity; physical activity; teeth, whether they are crooked, prominent, or decayed; whether these patients are mouth breathers; if there is frequent absence from school and the cause therefor; their behavior; inattention; dullness in studies; squint or other eye defects; deafness; nasal voice; diseases of the skin and pimples; twitching of the eyes, face or any part of the body; offensive breath; overdevelopment physically; underdevelopment physically; uncleanliness; vicious personal habits; signs of fever; signs of contagious disease and cough.

We expect to furnish each teacher a list of these particular things to be observed. We will not find it practical at the present time for the medical inspector to visit the school once a week and spend an hour to go through the whole room and inspect personally each child; but we propose to furnish each teacher this list to be observed; then at the next visit of the physician they will have these children in position where they can be examined, and after the examination the following report will be formulated, will be signed, and sent to the parents in case any of these defects are found. This is only advisory excepting in case of contagious diseases, which are referred to the city health department. In case a child is found suffering from a non-contagious disease, the following notification is made to the parents, and in this case it is only advisory, giving the name of the party and the address: "It has come to our notice that your child needs medical attention relative to the disease known as........... We would suggest that you place him (or her) under the care of a physician or specialist as early as possible, in order that he (or she) may be in a better condition, physically, to continue studies, etc." Signed by the medical inspector.

That is as far as we have got in the city of Peoria at the present time. We have formed what is known as a medical inspectors' organization, which will meet at stated intervals at the call of the chairman, and we expect gradually to develop a more perfect system. I thank you.

Dr. Arthur D. Black, Chicago: When I saw so many people gathered in this beautiful temple I could not help but wonder what a certain man who is in this audience might be thinking. In the year 1865 the Illinois State Dental Society was organized in the back part of a store in Chicago, by a group of fifteen or twenty men. This society has met every year since. In the year 1870 it met here in Peoria. There is present in this hall tonight one who was present at the meeting in 1865, and at almost every subsequent one; and I have been wondering what comparisons he has been making between this meeting tonight and the meetings he attended in 1865 and 1870. You all know to whom I refer; to the only remaining charter member of this Society, Dr. J. N. Crouse.

It seems to me that nothing could better exemplify the progress that has been made by the people of the State of Illinois under the guidance of the Illinois State Dental Society; for this great meeting here tonight is but one expression of the spread of knowledge among our people as a result of the work of the few very earnest men who organized this Society, and of the many others who have contributed to the success of its many undertakings.

I am reminded of a certain other elderly dentist, practicing in our state,; a man who probably never attended a meeting of the dental society, a man who is practising dentistry today as it was practised in the days when this Society was organized, a man who today claims that he is the champion tooth extractor in his section of the country; and that man has one peculiar characteristic, namely, that in all these years he has saved every tooth he has extracted, and has thirty thousand of them piled up in boxes in his office. (Laughter.) Compare the life work of that man, if you please, with that of the average up-to-date dentist of today, who does not extract more than a few dozen teeth in a year, and you could not find a better example of the progress which dentistry has made. The dentist of today saves teeth, he does not often extract them.

I will speak very briefly of one phase of the subject which has been presented by Dr. Evans. I wish, if possible, to bring this subject just a little closer home to some of you than he has done, for Dr. Evans has handled the broader side of this topic. I want to ask if you have ever tried to read in the evening, when you had on a shoe that was a little too tight; that pinched a little here or there and constantly attracted your attention so that you could not enjoy your reading? With how much more comfort were you able to go on with your reading when you put on an old pair of slippers? I give you that illustration of the condition in which many of you are keeping your children while you are expecting them to study in school. If the child has a tight shoe, if it has a tooth which hurts a little, if it has a splinter in its finger, if it has any little irritation about it anywhere, it can not study well at school. We are learning that in almost everything we have to do, attention to the minutest things is of the greatest importance in the final results. Take our great business corporations; they could not exist today if they did not have a system by which they are enabled to handle the minutest details much better than do the smaller organizations with which they have to compete and which they usually wipe out of existence. It is the little irritation; it may be an irritation so slight that the child does not realize where it is or what it is; it may not be sufficient to cause much complaint; but that irritation, no matter how slight.

is having its effect on the work of the child, and if it is allowed to go on year after year, it is going to have a very serious effect on the mental and physical condition of the child. We are trying to prevent everything that we ought not to have, and the time is coming when the medical man, the sanitarian, the dentist, the lawyer and the preacher will all put forth greater effort to guide the people under their care, to teach them to do those things which will prevent disease, and suffering, and trouble, and thus promote better development.

In the care of the human system it seems to me that the individual should be especially instructed and guided by the physician and dentist in the care of those passages through which things enter the body—the nose and the passages connected with it, and the mouth. Care should be taken to know that there is no obstruction to proper breathing, that there are no enlarged tonsils or adenoids, that the air that goes in is the right kind of air, and that there is plenty of it. The utmost care should be taken to see that the mouth is in the best possible condition to prepare food properly for digestion and assimilation, and that the food and drink are of the right kind and quantity. Mr. Horace Fletcher would possibly tell you that it is of more importance to see to it that the quantity of food is right and that the chewing of it is properly done. The time is coming when very much more attention will be paid to the harm that comes from overfeeding, and insufficient mastication, both of which overtax the entire system. I should like to emphasize the statement that the care of these passages will be of the greatest importance in the future in the prevention of disease and in the building of good men, strong physically and mentally.

Dr. Evans (closing the discussion): There is no ordinary reason why there should be a closing speech for this discussion. The only reason is, I fear, that some of those dentists who have listened to what has been said will get the idea that dental inspection of school children is only applicable in schools located in large centers, and it is of that I wish to speak particularly. I have already spoken to you about the work of Mr. Jenkins, principal of the largest school in New York City, who stated that in the schools under his care several dozen children did not make grades on account of physical defects. The most prominent physical defect was bad teeth, and the percentage of bad teeth found varies according to the man who is furnishing the statistics. Ordinarily, the medical observer does not find more than about thirty per cent of the teeth that are bad, whereas a dentist will find from ninety to ninety-five per cent, and that means that the dentist will see defects which the ordinary medical inspector would overlook. In the judgment of Mr. Jenkins, failure to make grade by most of these children was the result of defects of the teeth, and that these were of major consequence for the reason that these children could not study to advantage.

Next in order of importance came enlarged tonsils and adenoids. Also eye defects, and the other defects trailing behind

Dr. Johnson has told you about the percentage of children we found to have defective teeth in the City of Chicago; and Dr. Kerr has told you of what is being done and what is being contemplated in the City of Peoria. I want to suggest to you that it is not necessary that you should wait for your town to grow to be as large as Peoria or Chicago or New York, because it would be wasting time and opportunity if you waited until that time arrived. Let me offer this suggestion, that no town is so small that it cannot have dental inspection of its school children, particularly where there are several dentists in that town. Of course it will have to be done by voluntary effort. I know of no great sociological movement that is begun as a community function which is carried on by governmental agencies. Every one I know has begun as a philanthropy and the philanthropy has proceeded sometimes from one source and sometimes from another. The great function of these philanthropic organizations is to discover and to demonstrate community needs, because legislators are not as closely in touch with the people as are these philanthropic agencies, and in consequence dental inspection, whether it be done in a town of one thousand, or ten thousand, or a hundred thousand, must begin as a voluntary, a philanthropic, or semi-charitable effort on the part of those who are in the best position to know what is needed and what can be done, and that means, so far as dental inspection is concerned, that voluntary effort will always have to be the offer of dentists. This work can be done in a town of ten thousand; it can be done in a town of two thousand. I believe it is much more important to examine children in the first grade than those in subsequent grades. If we are trying to gain efficiency in school and are trying to get results from physical examination, the best time to make these examinations is at the beginning of school life and carry them on through as many subsequent grades as possible, but we should see to it that the first grade is covered as the children come in. The jaws are then developing rapidly and the changes which take place in the teeth at that time are very far-reaching. Dentists in a community of ten thousand can make systematic examinations of every child in the first grade and possibly of some children in other grades, and give them relief in a large number of instances. This would serve not only to educate the school boards but school teachers as well, as to what was to be gained in the way of educational value to the community at large. It is better to have this work done by organized rather than by individual effort. If an individual dentist, acting on his own initiative or responsibility, undertakes this work, he will subject himself to criticism—a criticism that he would not subject himself to if he had been delegated by his local society or delegated by the State Dental Society to undertake the work in a school along the lines laid down either by the local dental society or by the state society. There are children in small places whose lives are being wrecked by reason of the fact that they are not getting dental school inspection, and the plea of my closing remarks is that dentists in small places, of say five thousand or ten thousand inhabitants, have a responsibility resting upon them, as well as the good citizens who live in those places. Let us then remember that it is not solely a problem for the dentists in large cities, but for the dentists who live in the small places.

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EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

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EDITORIAL.

A PLEA FOR ELIMINATION.

There is one expression which has crept into dental literature which seems to us very unfortunate. Where it had its origin we do not know, but we make a plea for its elimination. This is the phrase "American Dentistry." There is no such thing, or at least there should not be. Dentistry is dentistry the world over, and if the practitioners of different countries have their distinguishing characteristics, there is no reason why so much should be said of American dentistry any more than of English dentistry, or Spanish dentistry, or German dentistry, or French dentistry, or Burmese dentistry. We can see nothing in the situation to entitle American practitioners to the distinction of having the dentistry which they practice singled out as something apart and separate from that practiced in other countries, and we never see the phrase "American Dentistry" that we do not view it with alarm. It implies too much that is akin to the suggestion of superiority over other dentistry, and the reason we are alarmed is because the most dangerous thing for the profession of any country to do is to assume superiority.

Such an assumption is usually the precursor of deterioration, and the moment we of America begin to think that we are a whit better than the profession of any other land that moment we start on the toboggan slide to degeneration. Let us look the matter squarely in the face, and if we are sufficiently broadminded we shall see that dentistry in other climes is making great strides and that we can learn much from our confreres abroad. If we study the journals of other countries we are astonished at the progress therein portrayed.

There is nothing so withering as self-conceit, and we have a fear that there has been some self-conceit behind the phrase "American Dentistry." Let us have an end to this expression, and let us all work together for the common good of dentistry the world over. Let Americans be broad enough and modest enough to see the good in others and not relegate, even by inference, any superiority to themselves. This will be better for everyone—most of all for Americans.

THE EDITOR'S DESK.

TOURING IN BETSEY'S HALF-SISTER.

[Continued from the November DENTAL REVIEW.]

III.

The next morning we left Buffalo and started for Niagara Falls to take the cars across the lines at Suspension Bridge. We reluctantly said goodbye to George, who was to take the train back to Erie to visit friends, and then on home to Chicago. We missed him ever after during the trip.

The detail of passing cars through the customs is really very simple. The officers on both sides of the lines are uniformly courteous and helpful. The American officials give you a description of your car with their signature as you leave the American side. This is done so that you may take the car back into the states. On the Canadian side you state about the time you wish to keep the car on Canadian soil, and then a description is taken. A firm of brokers give a bond and charge $5.00 for this. They also supply you with Ontario license and numbers which cost $4.00. They then hand you a release of the bond to be filled in and signed by the Canadian officer at the point of exit, and this is to be mailed to the brokers when the car is released.

Don was bound for Oakville about twenty miles west of Toronto, while I was going straight to Toronto and from there about sixty miles northeast to my old home. It had been my plan to drive from Suspension Bridge to Niagara-on-the-Lake and ship by boat to Toronto, but I couldn't resist the temptation to tour around the west end of Lake Ontario with Don. And thus came my undoing. Up to this time "Sister" had acted like a perfect lady, with not a miss of any sort since we left Chicago. That is, for about 700 miles she had been a perfect joy. But shortly after we entered Canada I got some dirty gasoline, and then my troubles began. I had vowed when I started out that I should strain every bit of gasoline that went into my tank, but in this instance I listened to the siren song of the supply man that his gasoline "went through eighteen thicknesses of chamois before it entered the hose, etc." We were in a hurry—Don was waiting for me ahead, and so I was foolish enough to yield. By chance I left the metal screen in the top of the tank as he pumped the gasoline in, and when the tank was filled, I saw an accumulation of dirt in the screen. On holding it up to the supply man he nonchalantly remarked: "Oh, that is only a bit of rubber off the inside of the hose." I don't believe in murdering a man,—I wouldn't feel comfortable after it was done,—but I still think that chap deserved to be—well he deserved to be caught out on a dark night with an automobile in which dirt was plugged in the carbureter. It was not long before poor "Sister" began to cough, then she gasped for breath and then she stopped. By allowing her to stand for some time till the gasoline slowly seeped into the carbureter she would go on for a short distance only to choke down again. My carbureter was a somewhat complicated one to remove, and I did not dare make the attempt, so there was no alternative but to submit to the humiliation of being towed to the nearest little town. But Don, cheerful and hopeful as ever, came to my rescue. When we reached the town we found that no one there knew anything about an automobile. We then telephoned ahead to Grimsby and they promised to send a man out. He came—a private chauffeur, and a royal good fellow. We sent the ladies on to Grimsby in Don's car, and Don stuck by me like the thoroughbred that he is. The chauffeur removed the carbureter, uncoupled the feed pipe and tried to blow through it. "It's plugged tight," was his remark, and then I thought of that dear innocent fellow miles back who had sold me the gasoline;—only I am going to be honest and admit that I didn't think of him as being either "dear" or "innocent." It was night before we got "sister" so she could breathe, and even then the chauffeur remarked dubiously that she didn't seem to be getting enough gasoline in the carbureter. But we ran to Grimsby all right, and then I insisted on Don running on to Oakville, to which place he was naturally anxious to arrive that night. I was willing to tackle the trip with him but my girls, with much better judgment than I, urged me to stay over night at Grimsby and face the trip by daylight next morning. The wisdom of this was amply shown the following day.

When we first started out I never saw "Sister" behave better. She went at her work with a vim but long before we reached Oakville she began to hang out distress signals. When running on perfectly smooth roads she got on very well but in sand or on hills she labored painfully. This was unusual, because I had never seen her hesitate on any ordinary pull before. But finally we limped into Oakville where we were greeted by Don out in the middle of the street vociferously waving his hands and swinging his hat, and by Mrs. Don and Billy Boy as enthusiastically as if we had just returned from a six months' exploration trip into Central Africa instead of simply being separated from them over night. Such are the bonds that bind the tourist together.

Don advised me to try to make Toronto as best I could because of the lack of expert repair men in Oakville, and so he generously escorted me out of Oakville as far as Dundas Road which ran straight into Toronto. When we said goodbye to Don he exclaimed: "Gee! I'll never forget that trip. It is the event of a lifetime. Good luck to you, old man." And his heartiness cheered me all the way to Toronto.

The roads are fine from Oakville to Toronto and we had little difficulty in reaching the city, but when I pulled "Sister" up to the curb to let out my girls, I confess to a sigh of relief that I had landed them all in safety. I told the repair man my troubles and he tackled the problem at once. While I was at my dinner he had the carbureter off and on my return pointed to a spot on the floor and said: "Do you see the water that was in that gasoline?" And then I thought some more of the dear man who sold me the gasoline.

But troubles never come singly, at least with an automobile. The next morning when we left Toronto to run to Blackwater, which was our destination, "Sister" ran all right for a time but soon I noticed a drag. In fact, for the past two days there had been an unusual pull on her in some way, which did not seem natural. I felt the differential and it was hotter than I thought it ought to be, though I had put grease in it before leaving home. I even went so far as to run her to the side of the road and crawl under her and remove the differential cap and pack in some more grease.

I am going to spare my readers the harrowing details of how we got to Blackwater, but suffice it to say that shortly after we reached there an ominous crashing in the differential led to taking it down when we found the cause of our most recent trouble. Some heavy strain had crushed down one of the bearings in the differential. This had given way piece by piece till finally, after being chewed all to bits it had let loose the rollers in the differential and they had "done things." It necessitated leaving the car jacked up just when I wanted to use her the most, and sending to Chicago for parts with which to make repairs. But such are the fortunes of war.

INVESTED SURREPTITIOUSLY WITH THAT REAR AXLE.

Just here I should like to pause long enough to ask my readers a question, particularly those who have run an automobile. Have you ever had your car tied up for repairs and sat waiting day after day for the parts to come, and have you watched other cars whiz past and wondered in your very heart if your car would ever run like that again, and have you gone out in the barn and put on your overalls and rubbed the engine a little bit more after you had rubbed it the day before, and have you polished up the body till it seemed as if you would rub off all the paint, and then in desperation have you started up the engine when the transmission and whole rear axle were out of the car just to hear the music of the motor and to assure yourself that the thing had some life left in it yet—have you done all this? I have. And I brazenly affirm that I am not ashamed of it.

But one Saturday night—think of it, *Saturday* night—in came the new rear axle on the train. I expected a repair man out from Toronto to put the car together, but he did not come. Sunday is very rigidly observed in that part of Canada, but let me whisper something in your ear. At peep of day Sunday morning, I sneaked out into the backyard and wrestled surreptitiously with that rear axle till I had single-handedly placed it in position under the car. My friends in the dental profession would never accuse me of being particularly muscular but *I did that!*

By this time George—another George and another indispensable—came to my rescue. He understands more about machinery than I could ever dream of in my wildest flights of imagination, and so at it we went. We soon forgot all about it being Sunday, and as we got warmed to our work the sneaky feeling passed away. One thing sure, when I bargained for that automobile, I had no idea how much material I was buying. There were more parts to it than to a watch factory. But after a while they all got into place somehow, and as we removed the jacks I looked at "Sister" in wonder and surprise—wondering if she would go, and surprised if she would. But she did, and I shall never forget the feeling of elation when I climbed behind the wheel, threw her into reverse, gingerly let in the clutch and she pranced backward out of the barn, curving gracefully around the woodpile, and stood proud and snorting by the back gate.

My, oh my! what rides around the country we had after that! It was worth waiting all those weary days just to feel the thrill of the machinery again, just to see her respond so joyously to the accelerator, to see her dig in her toes and rush a hill, and slow down smooth and subdued on the crest of a steep decline. No need telling me that an automobile has no soul—it is the "livest" thing in all our modern civilization. I may run a flying machine one of these days—I may—but I never expect to get greater elation out of anything than I do out of an automobile.

(To be continued.)

BOOK REVIEWS.

The Prevention of Dental Caries—By J. Sim Wallace, D. Sc., M. D., L. D. S., Hon. Dental Surgeon to the West End Hospital for Nervous Diseases. Published at the office of *The Dental Record*, London, England.

There is a dominant note of optimism in this book regarding the possibility of preventing dental caries, and the book is well worth the study of every dentist. In fact it is a book which must actually command study if one is to become familiar with all the latest ideas connected with this fascinating subject of the prevention of decay of the teeth. Dr. Wallace's well-known theories regarding caries are crystalized in this brief volume of less than fifty pages, the burden of which is to prove that the chief factor in caries is the question of diet. He even gives two different types of diet, one of which is calculated to prevent caries and the other to invite it. And in commenting upon these types, he says: "On comparing these two different types of diet, we observe that one is a kind that stimulates mastication and the last thing taken leaves the mouth clean, or at least free from carbohydrates, so that even when soft food is part of the meal the mouth will be physiologically clean at the end of the meal. The other type is intended to represent the kind of meal which is calculated to lodge about the teeth and to ruin them within a few years by making efficient mastication and the self-cleansing of the mouth practically impossible, and by leaving the mouth sticking with fermentable carbohydrates and a virulent crop of acid-forming micro-organisms which have had their development encouraged by the previous meal."

One of the most encouraging things about Dr. Wallace's theories is the fact that he recognizes that the essential factor in caries is something which affects the conditions surrounding the teeth rather than something connected with the intrinsic structure of the tooth itself, and that the chief thing to consider is the establishment and maintenance of function. His book should be read everywhere.

Modern Dental Materia Medica, Pharmacology and Therapeutics—By J. P. Buckley, Ph. G., D. D. S., professor and head of the Department of Materia Medica, Pharmacology and Therapeutics, and formerly director of the Chemical Laboratories, Chicago College of Dental Surgery. Third edition, revised. Seventy-two illustrations. 395 pages. Price, $2.50 net. Published by P. Blakiston's Son & Co., Philadelphia.

The chief change made in this standard work from the previous editions is in greater elaboration of some of the technical procedures and in the addition of many illustrations. Buckley's "Materia Medica and Therapeutics" has taken a high place in dental literature from the first, and the care used in revision will make the present volume even more acceptable than its predecessors.

Gould's Pocket Medical Dictionary—Sixth Edition, Revised and Enlarged. Price, $1.00 net. Published by P. Blakiston's Son & Co., Philadelphia.

It is only necessary to announce that a new edition of this very satisfactory book is out. It is enlarged to contain 34,000 words and yet it may conveniently be carried in the pocket. It is the proverbial *multum in parvo* applied to dictionaries.

Dental Materia Medica, Pharmacology and Therapeutics—By Charles W. Glassington, M. R. C. S., L. D. S. Edin. Senior Dental Surgeon, Westminster Hospital; Late Dental Surgeon, National Dental Hospital, and late lecturer on Dental Materia Medica and Therapeutics to the college, etc. Second edition, 287 pages. Price, $2.40. Published by J. & A. Churchill, London, England.

This is a very practical and common sense treatise on the subject, covering a great deal of ground and taking up such topics as local anesthesia, pressure anesthesia, mummification of the pulp, etc. In the latter operation the author justly limits its use to inaccessible cases, and says that its general practice will lead to abscesses and much subsequent trouble. The book is concise and well written.

Anatomy—A Manual for Students and Practitioners, by John F. Little, M. D., of the Jefferson Medical College, Philadelphia. New (2d) edition, enlarged and thoroughly revised. 12 mo, 491 pages, with 75 engravings. Double number. Cloth, $1.50, net. The Medical Epitome Series. Lea & Febiger, Publishers, Philadelphia and New York, 1911.

The history of this book is interesting. It was first published from the manuscript of Dr. F. J. Brockway, who afterward died.

Then it was revised by Dr. Henry E. Hale, who subsequently became identified with other subjects, and now this edition is brought out under the able guidance of Dr. John F. Little.

It is a very useful little book, especially designed for students as a quiz book and for practitioners in refreshing their memory on anatomical points. It is one of the Medical Epitome series so popular in the past.

CORRESPONDENCE.

LETTER FROM DR. GAYLORD.

To the Editor:—

Always upon receipt of the DENTAL REVIEW (which by the way I am pleased to say is never a laggard in arrival), my first impulse is to look for the "Editor's Desk," and I am writing this to request the editor (whom we all love), to continue his contributions "Touring in Betsy's Half Sister," throughout the year.

After the delightful account of the direct run is given, by all means reverse it, as I am sure there is still good material for his fertile mind and ready pen, to furnish these articles of digression, which tend so much to show the other fellow, the wealth of love, good health and sweet sleep, as the result of communing with nature. In short, no human ever gets so near the source of his or her being, as when "Out in the Wild." Evidence; the "girls" all asleep, touring at thirty miles an hour. If that isn't proof of the overwhelming beauties of nature (mildly suggesting a degree of confidence in the acting chauffeur), then I'm not guessing.

All is rendered doubly enjoyable to me by having had the pleasure of meeting this charming family last August. By all means—if necessary—reverse the trip.

With kindest regards,

Sincerely and fraternally yours,

E. S. GAYLORD.

New Haven, Conn., Nov. 5, 1911.

NEW YORK LETTER.

My Dear Mr. Editor:—

The November meeting of the First District Dental Society opened the fall and winter program very auspiciously. The meeting was convened at the Academy of Medicine as usual, with the president Dr. W. W. Walker presiding. It was an occasion of such importance that all routine procedure after the opening of the meeting, was dispensed with and in Dr. Walker's pleasant and dignified way Henry S. Upson of Cleveland, Ohio, was introduced as the one to read a paper entitled:

"Dental Disease as It Affects the Mind."

Dr. Upson is an alienist of considerable note. He treated the subject from the dental standpoint in quite an engrossing way not seeming to be blinded by over enthusiasm although other alienists who were present and discussed the paper seemed to think that Dr. Upson was occasionally guilty of seeing too much. Individually speaking I do not think that he overstepped at all for I am convinced that dental diseases can and do affect the mind in some instances and pain need not be an attendant factor either.

Dr. Upson's paper opened by referring to distant medical references of old writers as to evidences of mental unbalance brought about apparently by dental irritation.

His findings were based upon the conviction that septic oral conditions contributed their portion but that impacted teeth were the great exciting cause of these mental conditions. He cited many cases and sustained his findings by showing skiagraph pictures of dental lesions—impacted teeth in the jaws of children as well as adults; peridental abscesses due to untreated and imperfectly filled pulp canals and septic conditions due to pyorrhea. The mental condition of the children was denominated as defective or incorrigible. They were all cured or very materially relieved by dental interference. Dr. Upson said that incorrigibility in children was always abnormal.

He said that the mental symptoms took on widely different forms. The absence of pain was no guide to diagnosis, when an impacted tooth is driven hard against the peridental membrane it created severe irritation—direct or reflex.

Dr. Upson seemed to think that oral lesions are not always manifest as disturbances in the mouth, or there only, but that the heart, kidneys, blood—septicemic conditions, etc., may evidence reflexes—to all of which dental scientists have called attention many times. It is very gratifying to have medical investigators confirm their conclusions. It is but natural that this should be, for the field of dental research has been left quite entirely to the dental investigators.

The wonder of the dental man is not that medical men corroborate his investigations but that they have been so remiss as to lose one of the greatest opportunities for a "coup."

The oral parieties include the organ of greatest complexity of any of the human body. The mouth is the chief portal of entry of the invading forces—bacteria. The whole medical world has persistently refused to recognize this fact and another fact, that, very many of the other organic disturbances that our medical confreres have to contend with have had their inception in the oral cavity.

Medical science has made marvellous progress in the past twenty-five years but what greater strides will they make in the next similar period when the habit of treating causes rather than effects will have grown upon it. To do this really successfully it may be necessary for all medical men to take a course in some dental university. But I have drifted away from a report of Dr. Upson's paper. The eminent men who took part in the discussion of Dr. Upson's paper were Chas. A. Dana, M. D., Frederick Petersen, M. D., J. Madison Taylor, M. D., of Philadelphia, Wm. Malon, M. D., Luther H. Gulick, M. D., E. T. Darby, M. D., D. D. S., of Philadelphia, M. J. Shamberg, M. D., D. D. S. and others.

Dr. Dana said that he was in sympathy with the line of investigation. That the duty of the neurologist was not only to look at the tongue, but the teeth. He felt confident that many cases of pernicious anemia were due to the condition of the oral cavity.

Dr. Upson must be accepted with a measure of caution. A healthy brain can stand any amount of irritation. The cases that Dr. Upson has reported as cured may have remissions.

Millions of people have bad teeth but not psychosis.

Dr. Fred Petersen asked the question: "Can a lesion of the fifth nerve bring about brain disorder?" and answered it "No." He conceded that mental depression and general nutrition could be impaired.

That impacted teeth could do so he answered in the negative.

Specialists he felt were prone to be over alert. Emotion or enthusiasm tend to blind us.

Dr. Upson's work shows the necessity for overlooking nothing.

The next to contribute to the discussion was Dr. J. Madison

Taylor: The terse things from his remarks were that skiagraphy is a great help in diagnosis. In this work is shows what an unsuspected abscess can do.

In his experience he has found that if nothing more, there is often great benefit to the conduct as a result of removing impacted teeth.

Dr. Luther Gulick continued the discussion: He occupies the position of physical director in our school system and is probably sufficiently distinguished not to need further introduction even to your middle west readers.

"Tens of thousands of school children have defective teeth. It takes from six to twelve months longer to develop such children." "I do not know that a constipated bowel changes the emotional lives of some people.

"As to Dr. Upson's paper, skepticism is the only attitude we can take in such matters. But there is another attitude we should take, that is gratitude.

"It is very well to speak of cases, but what we want is serial results."

One terse thing Dr. Darby said: "If Dr. Upson's work only awakens the interest of physicians it will be doing a great good."

Dr. Darby said that he felt that he was hearing from a twentieth century dentist from Dr. Upson's familiarity with terms. The doctor said further that he could not say that he had seen evidences of insanity from the diseases under discussion, but that he had seen cases where they had some relation thereto. And then he proceeded to relate the history of a case of hypercementosis of an insane patient who denied that he was having dental pain, but gave evidences of it. He was called upon to investigate.

The patient had to be anaesthetized. He found several teeth badly diseased which were extracted. Several months later he inquired about the man and found that he had nearly regained mental balance and he heard subsequently that he had recovered.

Dr. Darby reviewed also a case where the extraction of the second molars relieved the pressure of third molars in reflex disturbance for a woman.

Dr. Shamberg answered some of the skeptics of Dr. Upson by saying that it was an interesting fact that the specially interested observers often find what they are looking for. Many have very potent facts escape their notice by overlooking the importance of some things that should be taken into consideration. In the many cases that he has cared for during the last fifteen years he has only seen two or three cases of dementia due to dental causes. It is seldom the gross lesion that creates the greatest trouble. Dr. Shamberg showed a series of slides which were very interesting.

Dr. Robt. Morris, one of New York's very prominent neurologists and surgeons said, that, the skiagraph showed evidence of natures limitations of development. Every one is a representative in some degree. Numbers of peripheral irritations will precipitate minor psychoses. Reflex disturbances such as toxic conditions have their group of precipitating influences.

Dr. Upson, in closing the discussion, said little else than to reiterate the position as outlined in his paper.

The society voted him hearty thanks.

Yours truly,
The Buroughs.

PRACTICAL HINTS.

Edited by J. E. Schaeffer, D. D. S.

(This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaeffer, The Dental Review, 55 State Street, Chicago, Ill.)

Inlay and Amalgam Strips:—Home-made strip for inlay and amalgam work, is made by use of photograph trimmer, cutting up strip of architect tracing cloth into desired sizes.—*M. R. Harned, D. D. S., Rockford, Ill.*

Do Not Use a Porte Screw:—The use of the porte screw for extracting putrescent roots should be discouraged. It forces the infectious contents of the root into the soft tissues at the apex. I have known of serious cases of infection produced in this way.—*V. B. Newell, Stafford, Kas.*

How to Make an Upper Plate Stick:—Cut a groove clear across the model about 1-32 of an inch deep and from ⅛ to ¼ inch from the rear end of plate; this makes a little raise on the plate and may cause some irritation, but you know how to remedy that. —*James W. Cormany, D. D. S., Mount Carroll, Ill.*

A Troublesome Condition:—Patients often come in complaining of an obscure soreness and throbbing at the back of a lower third molar. In nearly every case this trouble is caused by a cheesy vile smelling deposit that lies in a sort of crypt just back of the third molar. All that is necessary to do is to thoroughly clean this pocket out and then syringe carefully with some mild wash.—*A. G. Smith, D. M. D., Peoria, Ill.*

Indications for Plaster of Paris:—Three classes of cases present, however, where this material is positively indicated for taking impressions: First, where any of the natural teeth are present. Second, where there are under cut surfaces opposed to each other. Third, where the ridge is flabby and will be readily distorted or bent out of shape. In all other cases a modeling compound that becomes plastic at very low temperature and hardens quickly can be used to best advantage.—*J. H. Prothero, D. D. S., Chicago, Ill.*

Occlusion Plus Articulation No. 7:—We find that the preparation given to the rims of the wax base plates, produces curved surfaces which correspond to the arcs of the two circles described. The curve formed from before backwards is called the compensating curve (also curve of Spee), as it assists in compensating for the overlap of the anterior teeth and the inclination of the condyle path. The lateral curve helps in obtaining contact between the posterior teeth of either side when the mandible is moved laterally. It is all important in establishing articulation.—*J. E. S.*

Method of Restoring an Ill-Fitting Shell Crown:—Sometimes a patient presents himself with an ill-fitting crown, which, because it is too large for the circumference of the root, has caused an irritation to the gum tissue in that region of the pericemental membrane also. Remove the crown, and prepare the root again. Fill the shell crown with inlay wax, place on the root and get patient to close tightly. Remove, trim off excess of wax, insert sprue wire and cast with 22 ct. gold. Bevel the outer margin of shell crown towards the root, so as to prevent any irritation and cement in place.—*A. Dangar Burne, B. D. S., D. D. S., Sidney, Australia.*

Amount of Tooth Movement:—The farther a tooth has been moved the longer will it take nature to rebuild the process around it to hold it in position. In my opinion it is folly to move the teeth of an adult to any great extent and expect them to stay put unless by the necessary insertion of permanent bridge work or something of the kind there will be permanent retention. The natural forces of occlusion will not retain the teeth perfectly after any considerable amount of movement even in a young child, if those teeth are moved after they are erupted fully. Yet the natural forces of occlusion are the real factors in the final success of the treatment of malocclusion. The length of the period of retention will vary from one to two and one-half years' duration, depending on the foregoing consideration.—*J. A. Burrill, D. D. S., Chicago, Ill.*

Gas Administration:—How often the question has been asked as to the amount of gas that should be given to a patient. Quantity cuts very little figure, as I have seen a little thin woman take five to ten gallons of nitrous oxide and some six foot man weighing two hundred and thirty pounds take only a few breaths before complete anesthesia. Nature has provided a safety valve for us in stertor. When a patient snores you can feel sure that he is as profoundly anesthetized as you can carry him with safety, and no one should continue the anesthesia beyond this point. Allow the patient to recover a little, then more gas can be given. Watching the respiration and the movements of the eyelashes which generally flicker until about the stage of proper anesthesia, are the most important indications of profound anesthesia. Have the operating room quiet and when you hear the deep breathing, and see a slight relaxation, you can feel pretty sure your patient is properly anesthetized.—*A. Brom Allen, D. D. S., Chicago, Ill.*

MEMORANDA.

JOINT MEETING.

There will be a Union Meeting of the Canadian Dental Society and the Ontario Dental Association at Hotel Brant, Hamilton, Ontario, June 3, 4, 5 and 6, 1912.

J. A. C. HOGGAN.

THE G. V. BLACK DENTAL CLUB.

The G. V. Black Dental Club will hold a mid-winter clinic in St. Paul during February, 1912. Definite dates will be given later.

DR. R. B. WILSON, Secretary,
American National Bank Bldg., St. Paul, Minn.

PATENTS OF INTEREST TO DENTISTS.

998,744. Separate tooth brush, Alexander L. Bonin, Montreal, Quebec, Canada.

998,600. Artificial tooth, Francis A. Carter, Chicago, Ill.

999,366. Device for the manufacture of dental crowns, John M. Gilmore, Chicago, Ill.

999,373. Dental appliance, Roy C. Kestler, Orleans, Neb.

999,964. Dental polishing device, Jesse D. Coney, Williamsport, Pa.

999,794. Inlay casting machine, John A. Johnson and C. M. Hedman, Chicago, Ill.

1,000,187. Mold for making artificial teeth, Thomas D. Moore, Philadelphia, Pa.

1,000,785. Air and water attachment for dental engines, Robert E. Cunningham and A. C. Smith, Elberton, Ga.

1,000,386. Magnesia cement, Roberto Eggenhoffner, Geonoa, Italy.

1,000,816. Dam mold, Thomas J. Kelly, Fond du Lac, Wis.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

CHICAGO DENTAL SOCIETY CELEBRATION, JANUARY 22 AND 23, 1912.
INSTITUTE OF DENTAL PEDAGOGICS, JANUARY 24, 25 AND 26, 1912.

PROGRAM OUTLINE.

CHICAGO DENTAL SOCIETY.

Monday, January 22nd, 1912, Manufacturer's Exhibit (all day); Monday evening, 8 o'clock, Paper—"Comparative Dental Anatomy," Dr. William Bebb. Tuesday, January 23rd, Clinic (all day), College of Dentistry, University of Illinois; Tuesday Evening, 8 o'clock, Paper—"Salivary Calculus," Dr. G. V. Black.

INSTITUTE OF DENTAL PEDAGOGICS.

Wednesday, January 24th, 9 o'clock, Address of Welcome, Mayor of Chicago; President's Address, Dr. Donald M. Gallie; Report of Master of Exhibits; Report of Commission on Text Books. Wednesday Afternoon, 2 to 5 o'clock, Paper—"The Teaching of Comparative Dental Anatomy," Dr. William Bebb. Wednesday Evening, 8 o'clock, Banquet; Address—(Prominent speaker of national reputation.) Thursday, January 25th, 9:30 to 11:30, Visit Northwestern University Dental School; Luncheon, 11:30 to 12:30; Automobiles to West Side; Visit Chicago College of Dental Surgery, 1 to 3 o'clock; Visit College of Dentistry, University of Illinois, 3 to 5 o'clock. Thursday evening, 8 o'clock, Paper—"The Teaching of Dental Histology," Dr. Fred B. Noyes. Friday, January 26th, 9 o'clock, "The Teaching of Applied Physics and Chemistry," Dr. Marcus L. Ward; 1:30 o'clock, "The Teaching of Clinical Dental Pathology," Dr. H. T. Smith; Report of Commission on Nomenclature; Report of Dental Index Bureau.

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